

# Deepening Of Territorial Specialization in The Production of Agricultural Products (In the example of the suburbs of the city of Navoi)

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**Abstract.** In this article, the deepening of regional specialization in agricultural product cultivation and the factors affecting it are analyzed in the example of the outskirts of Navoi. The structure of crops, cropland and agricultural production indicators in Navoi suburban agriculture were studied in terms of economic categories, that is, farmers and peasant households, and farming organizations. Also, the volume of production of agricultural products per capita in the suburbs of Navoi City, the development of vegetable growing, potato growing, viticulture, and horticulture industries will be discussed

The article analyses the state of agricultural development in the suburbs of Navoi and makes suggestions and conclusions that not only ensure the sustainable development of agriculture, but also increase the efficiency of the network, meet the demand for food products from the city population, ensure its safety, expand the geography of export of agricultural products, and improve the living conditions of the population.

The supply of food products to Navoi City inhabitants depends on vegetable growing development in the suburbs. From this point of view, although vegetables are grown as the main type of farming in all districts, the Karmana and Pakhtachi districts, located near Navoi, have a high productivity index. The natural and economic opportunities available in Navoi suburban agriculture determine that vegetable growing will be one of the main specialized branches of suburban development in the future.

However, in recent years, 20-25 per cent of the vegetable crops grown in Navoi's suburbs have been lost due to water shortages, various climatic and ecological problems, and various diseases of crops. In particular, the possibility of growing tomatoes and fruit crops (melons, watermelons) in open fields is becoming more and more difficult every year. From this point of view, studying the regional specialization of agriculture around Navoi is of crucial economic importance. For this, it is necessary to establish greenhouses to provide city residents with vegetable products in the conditions of different agro-climatic conditions for vegetable crops. In developing vegetable growing, it is necessary to use new technologies and increase productivity, to perform all agrotechnical activities on time. In this regard, the cultivation of various types of vegetable products in the greenhouses of the districts specialized in vegetable growing in the Karmana and Pakhtachi districts allows us to continuously supply city residents with food products throughout the year.

Horticulture and viticulture are also important agriculture branches in the Navoi suburbs. According to its specialization, viticulture is well-developed in the sub-mountain zones of the region. 56.2 per cent of the vineyard area and 60.9 per cent of the cultivated products are accounted for by the sub-mountain Khatirchi district.

According to the regional analysis of agricultural product cultivation in the studied region, vegetable and potato growing in the irrigated agricultural zone of the Zarafshan river valley around the city of Navoi, and horticulture and viticulture in the pre-mountain zone are specialized.

In conclusion, we can say that the development of agricultural sectors with the proper use of the internal potential of the region has a positive effect on the socio-economic support of the population and the reduction of poverty.

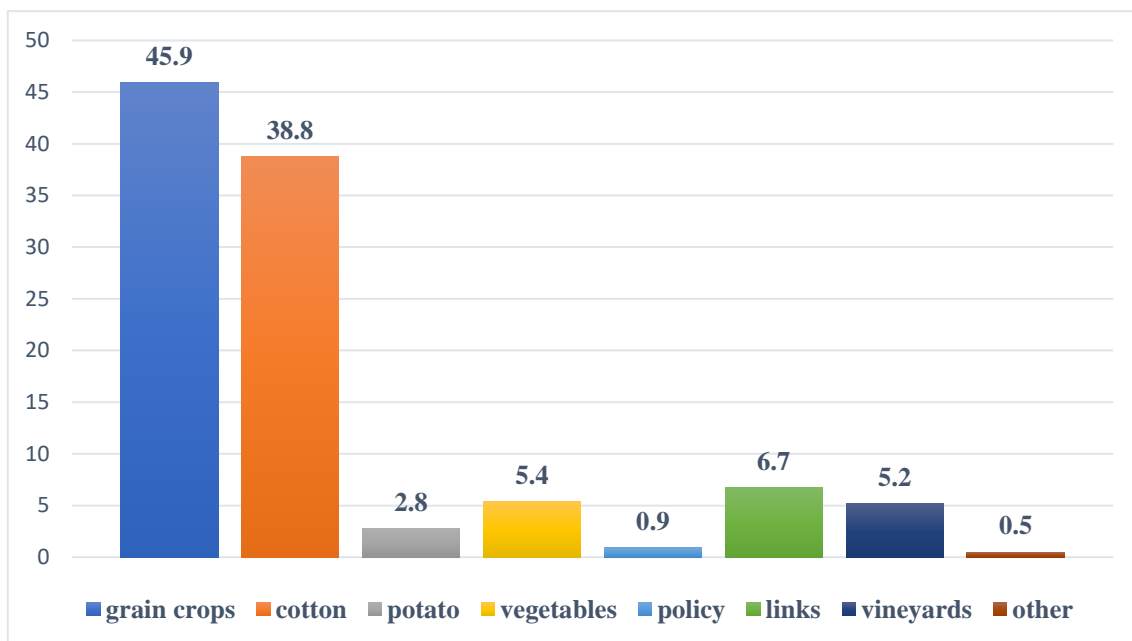
**Keywords:** area, agriculture, farming, specialization, food, suburbs, neighbourhood

**Introduction.** Agriculture is one of the main sectors of every country's economy. It is important to maintain a stable level of food security in the economy of every country [2] through the development of agricultural sectors as well as maintaining a stable level of agricultural production. If we take into account that

the main task of agriculture is to supply the population and the food industry with raw materials, its economic importance becomes even more evident. In this case, the specialization of agricultural production has economic and social importance [1].

**The main part.** Since food products are not always produced close to the consumer, they are delivered to different regions and cities [3]. Urban population growth requires more agricultural production. Farming is the leading branch of agriculture in the Navoi suburbs. In the composition of farm crops of the research region, grain crops are 45.9 thousand hectares, cotton is 38.8 thousand hectares, orchards are 6.7 thousand hectares, vineyards are 5.4 thousand hectares, vegetables are 5.2 thousand hectares, and potatoes are 2.8 thousand hectares. , sugarcane crops are grown on 0.9 thousand hectares and other crops on 0.5 thousand hectares (Fig. 1).

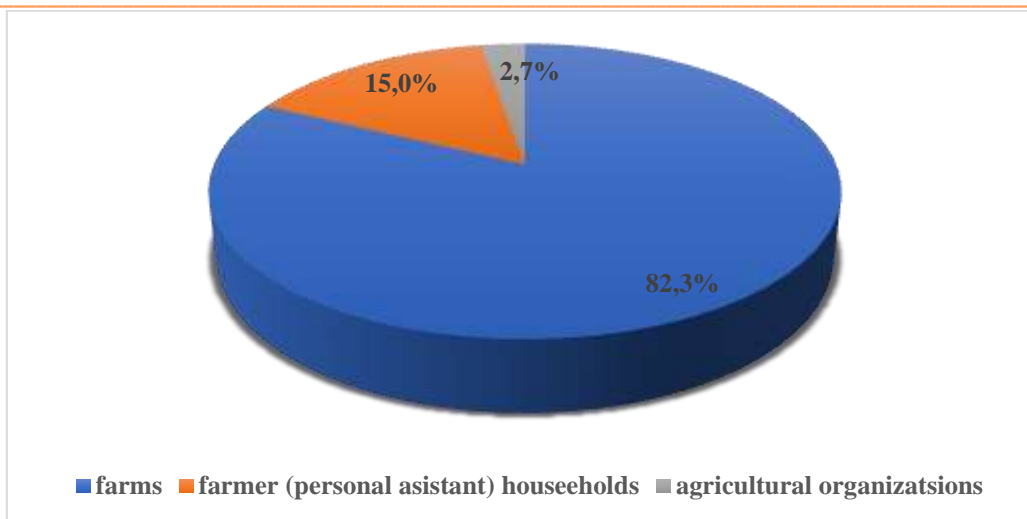
While the basis of agriculture in the research object is based on cotton and grain crops, vegetable growing, potato growing, horticulture and viticulture are important in providing the population with food products.



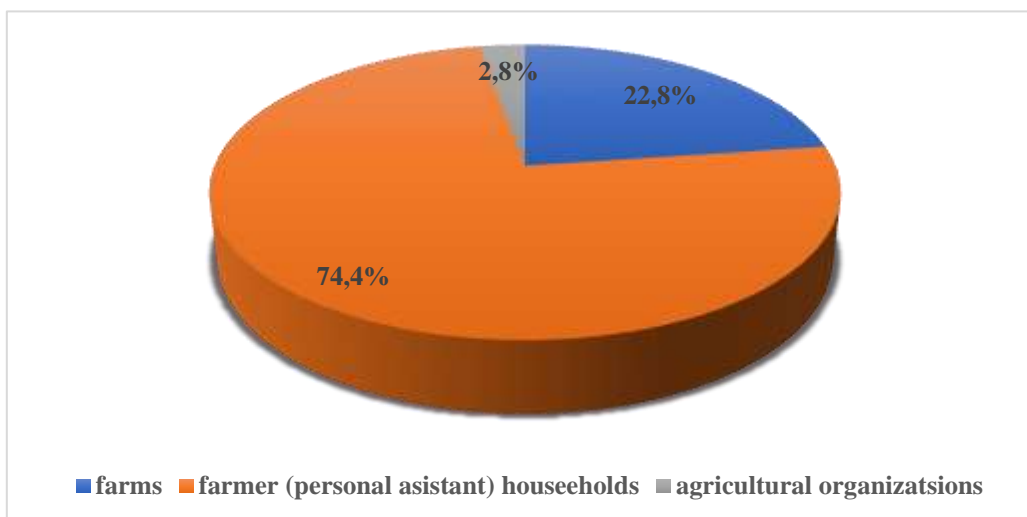
**Figure 1.** Composition of crops in Navoi suburban agriculture (hectares)

In the study area, agricultural products are produced by farmers and peasant farms, as well as by organizations performing agricultural activities. The arable land used in agriculture is equal to 106.2 thousand hectares for all categories of farms. More than 4/5 of it, i.e. 87.4 thousand hectares of land, is attached to farms. Farms own 82.3 per cent of the available cultivated land and produce 22.8 per cent of the agricultural products in the region. 15.0 per cent of the cultivated land and 74.4 per cent of the produced agricultural products are contributed by peasant (personal assistant) farms (Figures 2 and 3).

As of 01.01.2022, agricultural products in the amount of 3304.3 billion soums, 1012.6 billion soums in farms, and 124.4 billion soums were produced by organizations implementing agricultural activities. According to the analysis of the production of agricultural products by farm categories, peasant (personal assistant) farms produced more than 3.2 times more value of agricultural products than farms.



**Figure 2.** Share of farm categories in arable land, (percentage in 2022)



**Figure 3.** The share of economic categories in the production of agricultural products, (percentage in 2022)

Farms are the leaders in the production of cotton, coir, grain and leguminous crops. Farmers (personal assistants) in the production of vegetables, potatoes, fruit, grapes and sugarcane products. Farmers (personal assistant) farms produce 94.4% of potatoes, 79.7% of vegetables, and 65.9% of rice products in the region. From this, it can be seen that peasant (personal assistant) farms play an important role in meeting the basic daily food needs of the population of the study area.

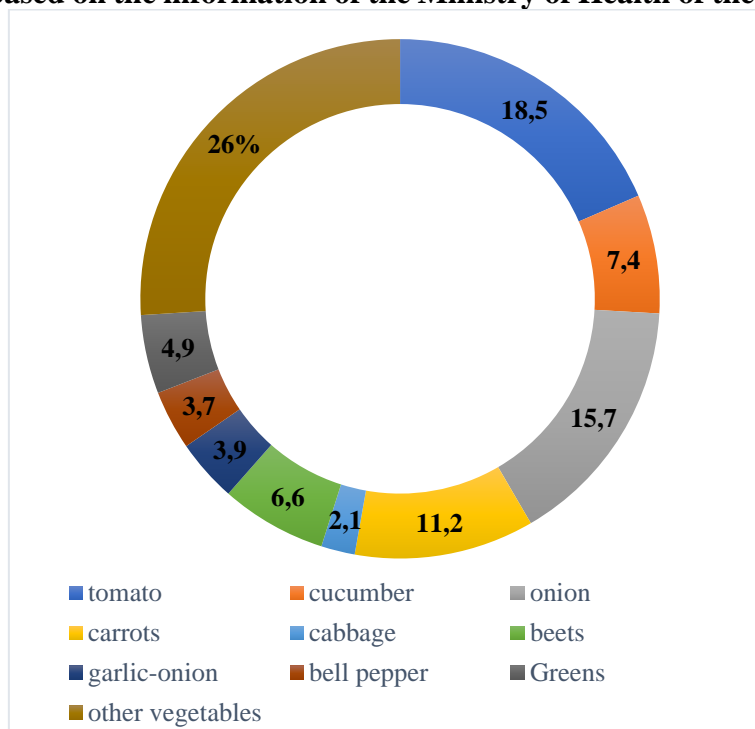
According to the analysis of production indicators of agricultural products in the study area, vegetable growing is in the leading position. In 2022, 300.8 thousand tons of vegetables were grown on 5.2 thousand hectares. Vegetable crops include tomatoes, onions, carrots, cucumbers, beets, garlic, onions, and bell peppers. For example, tomatoes are grown in 18.5% of the cultivated area, onions in 15.7%, carrots in 11.2%, cucumbers in 7.4%, and other types of vegetables in the rest (Figure 4).

The living conditions of the population largely depend on the composition of food, the quality of nutrition and its balance - the ratio of proteins, fats, carbohydrates, vitamins, and biologically active macro and microelements. According to the standards of rational consumption established by the Ministry of Health of the Republic of Uzbekistan, the contribution of vegetables in the daily diet of a person according to the physiological norm should not be less than 400 grams. According to consumption standards, each person should consume at least 140 kg of vegetables per year (Table 1). This requires solving the issues of providing the population with vegetables throughout the year.

**Basic food products per capita rational consumption norms of the level of consumption established by the Ministry of Health of the Republic of Uzbekistan**

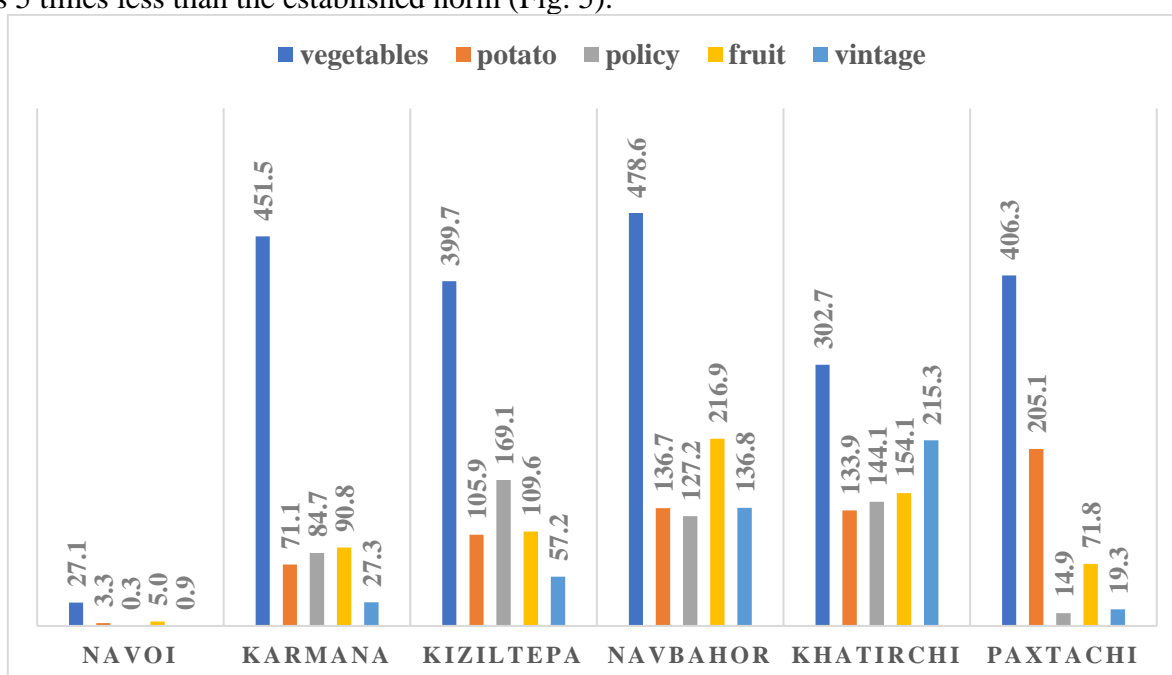
№	Product name	Per capita (per year, kg)
1	Vegetables	140,3
2	Potatoes	96,7
3	Crop peoducts	34,9
4	Fruits	82,8
5	Grapes	12,9

The table is compiled based on the information of the Ministry of Health of the Republic of Uzbekistan.



**Figure 4.** The share of vegetable species in the cultivated area

According to the analysis, we can see that vegetable cultivation is 2-3 times higher than the standard in all districts. The amount of vegetables grown per capita is 478.6 kg in Navbahor district, 451.5 kg in Karmana district, 406.3 kg in Pakhtachi district. But in the city of Navoi, 27.1 kg of vegetables are available per capita, which is 5 times less than the established norm (Fig. 5).



**Figure 5.** *Production volume of agricultural products per capita in the suburbs of Navoi city (kg)*

Currently, 17,400 tons of vegetables, 11,400 tons of fruits, 5,300 tons of fruit products, 2,000 tons of grapes, 6,400 tons of potatoes, 40,000,000 pcs. eggs, about 15 thousand tons of meat, dairy and fish products are required.

The supply of food products to the inhabitants of Navoi city depends on the development of vegetable growing in the suburbs. From this point of view, although vegetables are grown as the main type of farming in all districts, Karmana and Pakhtachi districts, located near the city of Navoi, have a high productivity index. Economic, social and natural factors directly affect the level of development and proper territorial organization of vegetable growing. For example, about 20 neighborhoods of Karmana and Pakhtachi districts located in the Zarafshan river valley with low salinity and humus-rich soils, in the north-eastern side of Navoi city, have a rich harvest of various vegetables. Taking into account the high demand for agricultural products in the daily lifestyle of city residents, relatively perishable types of vegetables (greens, tomatoes, cucumbers) are grown by neighborhoods specializing in vegetable growing near the city of Navoi.

Also, the proximity of the districts to the city of Navoi makes it convenient to sell agricultural products grown by farmers (personal assistants) and farms in the farmers' markets in the city. As a result of the convenient transportation system and the growing need for food products of the urban population, vegetable growing has become the main source of income for dehqan (personal assistant) farms in the neighborhoods of Karmana and Pakhtachi districts located close to Navoi city. For example, farmer (personal assistant) households of Jaloyir, Arabkhana, Shibzon, Nurafshon neighborhoods in Karmana district provide city residents, enterprises and state institutions with 17.6 tons of tomatoes, cucumbers, carrots, pumpkins and onions, 3.3 tons of potatoes, 5.1 tons of fruit, 4.1 tons of meat, 4.2 tons of dairy products. In addition to their homesteads, the residents of these neighborhoods rent the fields of farmers empty of grain and grow vegetables and dairy products every year. In particular, carrot products grown in Jaloyir, Allon, Nurafshan, Shibzon neighborhoods of Karmana district, known as "Jaloyir's carrot" in Navoi region, are popular in the markets of Navoi city and neighboring districts. Residents of the neighborhoods grow up to 80 tons of carrots per hectare and earn up to 60 million soums per hectare. The seeds of the cultivated products are also prepared by the residents of these neighborhoods in their private plots every year in February for seed production. On the territory of these neighborhoods, carrots, turnips, radishes, greens and other food products are planted on an area of more than 800 hectares every year, and more than 1000 families earn income by buying vegetables. Also, the M-37 international highway passing through these neighborhoods creates an opportunity to immediately deliver the grown vegetable products to the consumer and is economically important in providing the residents of Navoi city and neighboring districts with various vegetable products throughout the year. Husbandman (personal assistant) farms in more than 10 neighborhoods of Pakhtachi district located close to the city of Navoi, such as Istiqbol, Yobu, Kuvondyk, provide the city residents with 14.3 tons of cucumbers, tomatoes, bell peppers and various types of greens, 5.3 tons of potatoes, 4.5 satisfies the need for more than tons of fruits. Also, 7.5 tons of fruits, 9.5 tons of vegetables, 4.8 tons of milk and 4.2 tons of meat products are supplied by the farmers (private assistant) farms of Navbahar district.

It can be seen from the analysis that the cultivation of agricultural products is of great importance in the economy of Navoi city. The natural and economic opportunities available in Navoi suburban agriculture determine that vegetable growing will be one of the main specialized branches of suburban districts in the future. For this, it is necessary to establish greenhouses to provide the city residents with vegetable products in the conditions of different agro-climatic conditions of vegetable crops. In the development of vegetable growing, it is necessary to use new technologies and thereby increase productivity, to perform all agrotechnical activities on time. In this regard, the cultivation of various types of vegetable products in the greenhouses of the districts specialized in vegetable growing in Karmana and Pakhtachi districts allows to continuously supply the city residents with food products throughout the year. In 2022, 14.7 hectares (915) of new greenhouses were put into operation in the households of the districts specializing in the cultivation of vegetable products.

Currently, 3,012 households in neighborhoods located near Navoi city of Pakhtachi district have greenhouses on an area of 161.1 hectares. 361.4 tons of tomatoes, cucumbers, lemons, bell peppers and various greens were grown in greenhouses in these neighborhoods. Also, greenhouses were established on an area of 110.1 hectares in Katta Machit, Ayronchi, Ziyokor, Navroz, Arghun neighborhoods of Karmana district. 220.7

tons of products were grown in these greenhouses during 2022. Of this, 120 tons of tomatoes, 99.6 tons of cucumbers, 0.6 tons of greens, 0.5 tons of lemons, eggplants, greens and other products. 466.9 tons of vegetables grown in greenhouses were delivered to the domestic market and 115.2 tons were exported. Potatoes are one of the most widely consumed vegetables. In Navoi suburbs, the potato cultivation area is 2.8 thousand hectares, that is, 36.1% of the vegetable cultivation area. According to 2022 data, the highest yield of potatoes per hectare was 441.7 centners per hectare in Pakhtachi District (Nurafshon MFY), and the average yield was 351.7 centners per hectare.

In the study area, potatoes are grown in the private plots of the residents of the districts located in the irrigated farming zone. But providing the population with potatoes throughout the year, especially the urban population, is seasonal. The potato crop grown in the region only meets the needs of the population in the summer and autumn seasons. In the winter and spring seasons, farmers of Ishtikhon and Jomboy districts of Samarkand region and Surkhandarya region provide not only potatoes, onions, and pumpkins for the people living in Navoi city and its surroundings. Also, in the summer season, the demand for fruits and vegetables and dairy products of the residents of Navoi city and surrounding districts increases sharply. Producers of agricultural products in the suburbs of Navoi are able to provide the needs of the city's residents for various vegetables, fruits, meat and dairy products, but products such as tomatoes, melons, watermelons, and eggs are imported from neighboring regions. From this point of view, in the summer season, in order to meet the needs of the residents of Navoi city and surrounding districts, 20.7 tons of melons (melons, watermelons) from Jizzakh, Syrdarya and Kashkadarya regions of our republic, 20.8 tons of tomatoes from Bukhara and Samarkand regions, 37.1 thousand Eggs are transported by entrepreneurs engaged in wholesale trade.

In recent years, 20-25 percent of the vegetable crops grown in Navoi's suburbs have been lost as a result of water shortage, various climatic and ecological problems, and various diseases of agricultural crops. In particular, the possibility of growing tomatoes and fruit crops (melons, watermelons) in open fields is becoming more and more difficult every year. From this point of view, studying the regional specialization of agriculture around the city of Navoi is of important economic importance.

Horticulture and viticulture are important branches of agriculture in Navoi suburban districts. The area of gardens is 6681 hectares, the area of vineyards is 5.1 thousand hectares, the amount of cultivated products is 96.9 and 72.7 thousand tons. Horticulture and viticulture are 11.5% of the agricultural arable land of the research region and are among the most economically profitable sectors, like vegetable growing.

According to its specialization, viticulture is well developed in the foothills of the region. 56.2% of the area of vineyards and 60.9% of the cultivated products belong to Khatirchi District. 44,300 tons of grapes are harvested in the district every year and raisins are made from the main part of the harvest. Uchkara, Altinabad, Altinsoy, Tasmachi, Maidonsoy and Mirdosh neighborhoods specialize in viticulture due to favorable soil and climate conditions. Viticulture and raisin production in the neighborhoods is the most economically efficient sector compared to other agricultural sectors and is the main source of income for the farmer (personal assistant) and about 300 farms. Vine farms in these neighborhoods allocate 0.5-1 hectares of orchards to residents on the basis of a contract. Almost all of the more than 4,000 households in the neighborhood make an income from raisins. Starting from September, a raisin market has been organized twice a week in Tasmachi neighborhood, where up to 200 tons of raisins are sold per day. Black currant, nimrang, tayifi, husyni are grown from raisin varieties, and muscat from wine grapes. Black raisins of Uchkara are especially known for their sweetness and taste. Farmers' long-standing knowledge of the complex secrets of grape growing and raisin preparation helps in getting the intended harvest. For example, vines are fed local fertilizers such as old wall clippings, rotted manure to increase productivity and chemical fertilizers to prevent disease.

The soyaki method of making raisins is widely used in the district. Raisins prepared in this way retain their juicy and medicinal properties and are very popular in the market. Up to 16 tons of grapes are obtained by cultivating 2,500 vines per hectare of land. Net income is 40 million per hectare. amounts to soum. Grown raisins are exported to Russia, Turkey, China, Iran and neighboring countries.

In recent years, the disappearance of some grape varieties, cultivation of viticulture in small areas, low level of mechanization and application of new technologies, lack of possibility to develop additional land have caused a decrease in the yield. These factors have a negative impact on the development of viticulture in the region.

According to the analysis, the neighborhoods located in the northern and northeastern foothills of the region specialize in viticulture. Using the rich experience of experts in the field of viticulture in these neighborhoods and introducing drip irrigation technology in the existing dry lands of Khatirchi district, it is possible to increase the area of vineyards by 2.5 thousand hectares and grow an additional 50 thousand tons of grapes. Through this, the income of the residents of the neighborhoods specializing in viticulture and the potential of the region in viticulture will increase. At the same time, it will be possible to provide the needs of the residents of Navoi city and remote desert areas for grape and raisin products.

**Summary.** According to the regional analysis of the cultivation of agricultural products in the studied region, vegetable and potato growing in the irrigated agricultural zone of the Zarafshan river valley around the city of Navoi, and horticulture and viticulture in the pre-mountain zone are specialized.

From the analysis of the specialization of agricultural industries in the suburbs of Navoi, it was found that:

- the development of agriculture in the suburbs is important in meeting the food needs of the city population;

- the cultivation of agricultural products in the region is developed in specialized zones of promising importance. The deepening of specialization in zones is connected with the development and introduction of natural and economic geographical conditions and scientific and technical progress.

- the development of agriculture is the main source of income and employment for the families living in the neighborhoods of the suburbs of Navoi;

- the development of agricultural sectors with proper use of the internal potential of the region has a positive effect on socio-economic support of the population and reduction of poverty.

Based on the agricultural production potential of the region, it is advisable to deepen the specialization of the specified sectors in order to increase the productivity of the sector:

- due to the scarcity of water resources in the region from year to year, the limited possibility of productive use of irrigated land, the use of advanced methods of irrigation based on innovative technologies, in particular, paying special attention to the issue of wide introduction of drip irrigation;

- non-destructive processing of fruit and vegetable products and extension of their seasonality;

- among the factors affecting the sustainable development of fruit and vegetable production, using the available scientific and innovative opportunities by analyzing the economic, technological, legal and other spheres of economic, technological, legal and other spheres, the achieved results and eliminating the identified shortcomings;

- investing in the agricultural sector to ensure the food security of the population and thereby increase the region's capacity to supply products to local and foreign markets.

The implementation of these measures not only ensures the sustainable development of agriculture in the region, but also allows to meet the demand of the city population for food products by increasing the efficiency of the network, ensuring its safety, expanding the geography of export of agricultural products, and to improve the living conditions of the population.

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