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## **Why Fruit and Vegetable Production is Not Fruitful for Uzbek Farmers?**

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## ***Why Fruit and Vegetable Production is Not Fruitful for Uzbek Farmers?***

### **Abstract**

The natural and climatic conditions of the country provide ample opportunities for the development of fruit and vegetable production and food processing industry. Unfortunately, institutional transformations in agriculture in the past have promoted significant growth of cereal production, but not fruit and vegetable growing. As a result, consumption of healthy food in Uzbekistan is constrained by its seasonal and spatial availability and considerable price differences throughout a year, especially for rural population during off-season, and only high-income earners consume fruits and vegetables. Inadequate consumption of fruit and vegetables is among leading risk factors for public health in Uzbekistan.

The purpose of this research is to investigate the existing constraints and opportunities to improve the availability and accessibility of fruit and vegetables as a key determinant of healthy diet. What hinders activities of fruit and vegetable producers in Uzbekistan? What policies should be used to increase year-long fruit and vegetable supply in Uzbekistan?

A tabular analytical technique was used to qualitatively analyze the existing constraints for efficient fruit and vegetable production. Using a structured interview method, a sample size of 100 fruit/vegetable farms was selected randomly and disproportionally based on the master frame lists provided by the local authorities. The area covered included five districts in Tashkent province.

Despite favorable geographical and climatic conditions, production of fruit and vegetables is constrained by various factors such as imperfect input and output markets, distribution system failures, low consumer demand, problems in financing and credit.

The mechanisms to improve the current situation include reduction of bureaucracy and abuse of powers by public authorities, shift from planned system to market-oriented system of agricultural production, removal of export restrictions, better marketing research, knowledge capacity development, investment in new equipment, technologies and infrastructure, development of agricultural extension services and more effective work of associations and councils.

**Keywords:** Fruit and Vegetable Production, Uzbekistan

### **1 Introduction and Research Questions**

Tashkent province is located in the north-eastern part of Uzbekistan, between the Syrdarya River and Tien Shan Mountains. The capital is Tashkent, which is also the capital of the country, and is governed separately from the province as an independent city.

The climate of Tashkent province is continental with mild wet winters and hot dry summers. Agriculture is one of the leading sectors of the province's economy. Six districts (Ohangaron, Bustonlik, Zangiota, Kibray, Parkent and Yangiyul) out of total 15 specialize in producing fruit and vegetables, other districts are engaged in cultivation of cotton and wheat.

The natural and climatic conditions of the country provide ample opportunities for the development of fruit and vegetable production and food processing industry. Unfortunately, institutional transformations in agriculture in the past have promoted significant growth of cereal production, but not fruit and vegetable growing. As a result, consumption of healthy food in Uzbekistan is constrained by its seasonal and spatial availability and considerable price differences throughout a year, especially for rural population during off-season, and only high-income earners consume fruits and vegetables (ASKAROV and NUPPENAU 2010; UZBEKISTAN ECONOMY 2006; MUSAEV et al. 2010).

Reciprocal determinism asserts that environmental and personal factors can dynamically interact with behaviors, such as fruit and vegetable consumption. There is some evidence that availability of fruits and vegetables (an environmental factor) (BERE and KLEPP 2005; CULLEN et al. 2003; GRANNER 2004) may increase fruit and vegetable intake.

Given the importance of healthy diet and especially the adequate intake of fruit and vegetables, the current state of inefficient agricultural production in Uzbekistan has serious adverse consequences on the yields of fruit and vegetables, and thus on income of such farmers, and would raise the prices paid by consumers of such food products, especially in off-season.

The purpose of this research is, therefore, to investigate the existing constraints and opportunities to improve the availability and accessibility of fruit and vegetables as a key determinant of healthy diet. And research questions may be formulated as follows: What hinders activities of fruit and vegetable producers in Uzbekistan? What policies should be used to increase year-long fruit and vegetable supply in Uzbekistan?

## **2 Data and Methods**

A tabular analytical technique with the help of percentages, averages and ratios was used to qualitatively analyze the existing constraints for efficient fruit and vegetable production. As for data, a structured interview method was chosen as it allows tailored data collection and enables getting the data which are not available in open access. As a matter of fact, data access remains a big issue in Uzbekistan.

The farms which are producing fruit and/or vegetables were chosen as a target population for this survey. The area covered included five districts in Tashkent province, as the regional horticulture and vegetable growing is mainly concentrated in these districts due to their climatic and geographical peculiarities.

Based on the master frame lists provided by the local authorities (totally, 2,332 farms), a sample size of 100 farms was selected randomly and disproportionally. As a result, the sample size of 100 farmers has Confidence Interval 9.59 at 95% Confidence Level.

Actual on-site survey started on December 25, 2013 and finished on March 20, 2014. During this period a total sample of 100 farms was interviewed. Besides, expert interviews with representatives of local government (Khokimiyat), Farmers' Council, agricultural experts, scientists and civil society were conducted.

**Table 1. Main Characteristics of the Sample Farms in Five Districts of Tashkent Province**

		Bustonlik	Kibray	Ohangaron	Parkent	Zangiota	Total
Number of fruit and vegetable farms	Total*	253	482	411	701	485	<b>2,332</b>
	Covered	11	21	14	32	22	<b>100</b>
	Share, %	4.3	4.4	3.4	4.6	4.5	<b>4.3</b>
		Bustonlik	Kibray	Ohangaron	Parkent	Zangiota	Total
Area of fruit and vegetable farms, hectare	Total*	15,580.5	9,819.9	31,477.0	26,621.7	12,399.3	<b>95,898.4</b>
	Covered	455.6	977.3	1,756.1	1,347.7	520.7	<b>5,057.4</b>
	Share, %	2.9	10.0	5.6	5.1	4.2	<b>5.3</b>
	Grassland, grazing land	Grain, fodder crop	Horticultural land	Vegetable land (outdoor)	Vegetable land (indoor)	All other land	Total area of the farms***
Average value, hectare	7.3	20.0	11.8	5.5	0.2	5.7	<b>50.6</b>
Total area, hectare	731.3	2,003.2	1,184.0	551.6	18.6	568.6	<b>5,057.4</b>
Share in total area, %	14	40	23	11	0	11	<b>100</b>

*\*as of November 1, 2013.*

Source: Own calculations based on the survey results.

### **3 Main results and Discussion**

#### *Fruit and Vegetable Variety*

Within the sample, the farmers produced the basic fruit crops (grapes, apple, plum, sweet cherry, etc) and vegetables (onion, potato, tomato, carrot, pumpkin, etc). Greenhouse production of vegetables is mainly concentrated on tomato and cucumber growing. Green leafy vegetables are not the target crops for commercial farmers and the main supply of such crops in the market is provided by *dehkan* households. Besides, almost all *dehkan* households grow basic fruit and vegetables at their garden plots.

#### *Inter-relationships between Farms and the State*

There is still planned system of distribution of agricultural production by authorities (so called *razmesheniye*, meaning 'placement') based on the preliminary forecast of production carried out by the farmers themselves and in accordance with the development of priority sectors of agriculture. As a side effect of *razmesheniye* system, farms often fulfill the state plan "on paper", namely, they provide the necessary funds turnover for each mandatory crop production at the expense of production of other, more profitable crops. In general, farmers agree to follow the state production plan, but only on condition that its further efficient and profitable implementation and marketing is maintained.

Based on the survey data, decisions for around 40 per cent of the production volume are made by farmers themselves, and the rest 60 per cent – based on agreement with *Khokimiyat*. That shows a low level of farmers' independence.

There are cases when tax authorities intervene in the activities of farmers through receiving information from other state bodies about the crop production and using such information for taxing farmers.

Among other negative interventions by authorities, the farmers name the imposition of additional duties which are not a core business for farmers, such as mandatory participation of farmers in cotton-harvest picking and financial contribution for construction of local infrastructure. Sponsorship and charity forced by authorities cost a considerable amount to farmers in 2013 (3.8% of total expenditures).

#### *Membership in Associations*

Co-existence of various regulators (such as provincial departments of agricultural and water resource management, provincial and district representative offices of Farmers' Council, water consumers' associations, agrofirms, etc) creates a polycracy system where each stakeholder claims for the lead role.

Despite a fairly high number of membership in various associations (that is mainly forced by the state-led policy), it is not clear, whether such membership is useful for farmers. For example, capacity building activities and legal consulting are assessed as effective for the farmers, whereas agricultural extension and machinery provision are less effective. Unfortunately, very few farms have links with agricultural research institutions and Chamber of Commerce and Industry.

#### *Land Relations*

According to the Land Code of the Republic of Uzbekistan (1998), land plots can be given to farmers for lease for up to fifty years since land is a property of the State, but not less than thirty years, on the basis of open competition, and letting the leased land (or even a part of it) for sublet is prohibited. Nevertheless, some farmers let their leased land to smaller contractors through either hiring them officially, or by signing a sublet agreement, which is illegal. It happens often that sublease system entails conflicts when subtenants fail to fulfill the state plan that ultimately has a negative impact on the main land leaser under his liabilities to implement the state plan (*razmesheniye*) for entire farm production.

As farmers' state mainly depends on their geographical location (even at a district level), it is those who have worse access to water resources and fertile soils are the most vulnerable farmers. Some farms are owned by elite groups (mainly from Tashkent metropolitan area), who can have access to better lands due to their economic and political power.

#### *Output Market Failures*

Sudden changes in output prices in the market and low consumer prices are seen by farmers as the biggest risk factor of their activity. In particular, wholesalers and processing companies with their low prices put the farmers in stalemate where the farmers have no other choice but accept such prices, due to lack of output markets.

Insufficient marketing research (on average only 0.3 per cent of total expenditures in 2013) and, as a result, inadequate output delivery system also negatively affect the farmers' activity. In fact, farmers despite their willingness are not able to fully explore the market on their own due to high costs, and alternatives (agricultural extension services, consulting companies, research centers, etc.) either do not exist or they are non-affordable.

### *Labor*

On average, the costs for permanent staff account for one third of total expenditures. Average number of permanent staff in the five districts of Tashkent region totaled nine people. The number of hired workers, who are attracted to work mainly during the harvest season, varies from region to region because of different specialization, depending on different level of laboriousness. Unpaid work consists mainly of members of the farmer's family (including children), as well as family members of wage workers who work seasonally on the farm.

### *Seeds*

The farmers spent 11.3 per cent of total expenditures on seeds and seedlings in 2013. The deficit of local seed varieties leads to a situation where farmers are forced to buy seeds which are imported from abroad. And this import is expensive and only sold for cash in the market, which is very problematic for farmers as they usually do not possess a liquid cash, but non-cash funds. Often these are not quality seeds, which affect the quality of harvest. State control over the imported seed is ineffective.

### *Fertilizers and Pesticides*

Purchase of fertilizers on average accounted for 7.9 per cent of total expenditures in 2013, and pesticides - 4.8 per cent. There is a lack of biological pest control agents and the knowledge to use them is inadequate. In general, farmers are aware of the preference of biological control agents in comparison with pesticides, but in practice, they increasingly use the latter ones due to a shortage of the former ones. Sanitary conditions are inadequate when selling and using pesticides, their quality is questionable; control over their sale is not carried out by the state, while the prices are very high. All this ultimately affects the quality of production and human health. Farmer noted need to create special units of spraying pesticides on a large scale across different farms, because the processing of only one farm does not solve the problem of pests due to their mobility.

### *Irrigation*

For irrigation needs the farmers spent less than 2 per cent of their total costs. Such relatively low irrigation fees are explained by poor performance of WCA to ensure effective water distribution. In particular, there is the problem of clogging of canals and drainage water reservoirs. It even goes so far as farmers are forced to use drainage water for irrigation due to lack of water, which adversely affects the productivity and product quality. Management of transboundary waters affects the Uzbek farmers. When Kazakhstan closes the water (at the origins of the Syr Darya), the Uzbek farmers face water shortage. This situation leads to a large water deficit not only at the district level, but also at the regional level. As a result, there is a hostile attitude of farmers from different regions to each other in the management of scarce water resources.

### *Machinery and Equipment*

There is a high level of obsolete equipment among both farmers and WCA. Another problem is fuel availability. Despite the fact that the state requires all farmers to buy petroleum products from local storage depots under the contract for non-cash payment, even in the presence of the relevant agreement, the tank farms primarily supply the required fuel to producers of cotton and wheat, resulting in insufficient fuel availability for the fruit and vegetable growers. Therefore, the latter are forced to buy fuel and lubricants in the market for cash (which is a financial disorder) at high prices (fuel costs amounted 6.6 per cent of total expenditures in 2013) and the quality is often questionable.

### *Soil Quality*

Despite the existence of a legal basis, according to the farmers, no organization is engaged in scientific assessment of soil quality (content of phosphorus, nitrogen, potassium). In contrast, the State Land Cadastre often artificially inflates scores of soil fertility in order to ensure greater quotas on agricultural production and, consequently, increase government revenues due to large tax payments. As a result, payment of a single land tax significantly affects the budget of farms (7.3 per cent of the total costs in 2013).

### *Processing and Greenhouse Production*

According to the survey, processing of fruits and vegetables is carried out by only 22 per cent of farms. The main type of processed products is dried fruits (apricots, grapes, plums). Despite the low costs of drying fruit, the main factors limiting this type of processing include the absence or lack of free space, low prices for finished processed product in the market, low consumer demand and export restrictions.

It should be noted that the production of greenhouse vegetables is not attractive to farmers because gas supply is a pressing problem in rural areas.

### *Foreign Trade*

According to the survey results, it was obvious that the farmers neither directly import materials or supplies, nor directly export their products. The most correct explanation is the presence of export restrictions that were especially a problem for those who have previously relied on exports when planning their production.

With regard to possible mechanisms for the settlement of existing problems, the majority of farmers are in solidarity with the fact that government policies (including the removal of export restrictions and import-substituting production) is the most efficient mechanism.

The most effective measures for the development of export called by farmers included the following steps: export market research, creation of export cooperatives by farmers, and the development of centralized exports of fruits and vegetables through the Ministry of Foreign Economic Relations, Investments and Trade (MFERIT).

### *Lending and Financing*

Farmers are faced with high interest for the loan, the lack of tangible benefits in obtaining loans, the presence of various barriers in obtaining loans, including the existence of informal payments.

It should be noted that the adverse situation in obtaining loans directly affects the fact that farmers are forced to rely on personal savings as one of the most effective mechanisms for the resolution of their problems. In addition, any kind of help from informal sources (friends, relatives) is also highly significant for the farmers.

Relatively high degree of public distrust is reflected in underuse of potentially effective mechanisms such as membership in cooperatives, participation in commodity exchange and formal insurance contracts. Farmers often do not believe in the effectiveness of such measures, because until now did not receive significant benefits from their use.

### *Capacity Building and Technology Transfer*

Imperfect system of agricultural education system has a direct impact on the lack of qualified professionals in the labor market. Therefore, measures for training, including practical skills, are of great importance for the development of agriculture.



Investment in new equipment and technology is another mechanism capable to significantly improve the performance of farms. Intensive gardening technology using drip irrigation is served as one of the top priorities.

#### **4 Conclusions**

Existence of various problems in daily activities of farmers hamper development of efficient system of production and distribution of fruit and vegetables in Uzbekistan.

The mechanisms to improve the current situation include reduction of bureaucracy and abuse of powers by public authorities, shift from planned system to market-oriented system of agricultural production, removal of export restrictions, better marketing research, knowledge capacity development, investment in new equipment, technologies and infrastructure, development of agricultural extension services and more effective work of associations. Development of indoor production as well as fruit and vegetable processing are among the most effective ways towards ensuring a year-long supply of such products.

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