საქართველოს ბიზნეს ასოციაცია
BUSINESS ASSOCIATION OF GEORGIA

AGRICULTURE

Challenges and Opportunities

Research Report

Business Association of Georgia

2020

Agriculture

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CONTENTS

Introduction 5

Research Methodology 5

Agriculture Sector Overview 6

Research Results 9

- The need for industrialization of agriculture 9
- Smallholdings 9
- Technologies and equipment 10
- Logistics 11
- Infrastructure 12
- Irrigation and drainage systems 13
- Export potential - quality and image 14
- Insurance 18
- State as a driver of development 19

Conclusion 20

Resources 21

INTRODUCTION

Since 2013, agriculture has been one of the key priority sectors of Georgia and to support it, large financial resources have been allocated from the state budget, international donor organizations and private sector investments, etc. Last several years count a number of projects implemented to support the increase in production, attraction of investments in the sector and expansion of export markets. In addition, banking sector increased financing agriculture significantly; new research centers and laboratories started to operate; immense efforts have been speared to rehabilitate and install irrigation and drainage systems, etc.

Despite these efforts, agriculture sector advancement is still insignificant due to the challenges it is facing today. Georgia's Rural and Agricultural Development Strategy 2021-2027 still identifies infrastructure as one of the weaknesses of the sector (including irrigation and drainage systems), as well as the skills and knowledge, access to technologies, land fragmentation, lab capabilities, etc.

The present research aims at identifying those challenges that the large agricultural enterprises, individual product value chains or the entire agricultural system is facing.

RESEARCH METHODOLOGY

The research aimed at identifying challenges in the agriculture was conducted in two phases. At the first phase, information was gathered through desk research; whereas, during the second phase, individual interviews have been conducted both with the representatives of member companies of the Association, as well as with other organizations engaged in agriculture.

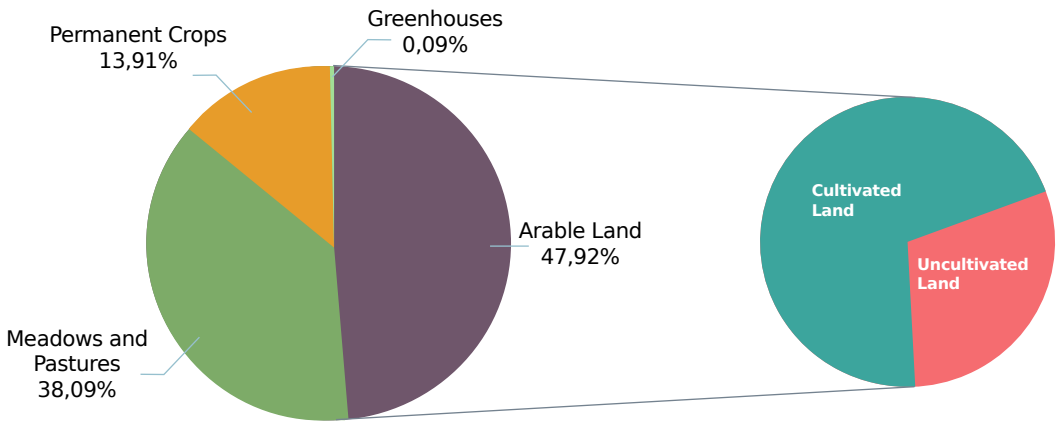
Research report is also based on the analysis of the knowledge and information gathered by the executive team of the Business Association of Georgia and within the Agrarian Committee of the Association.

We would like to extend our special thanks to CNFA (Cultivating New Frontiers in Agriculture) Representatives: Bauka Namicheishvili, Ilia Kvitaishvili and Shalva Pipia, as well as Nino Zambakhidze, the Chairwoman of Georgian Farmers' Association for the consultation.

AGRICULTURE SECTOR OVERVIEW

More than 3 million hectares of the land in Georgia is agricultural. According to 2014 Agricultural Census, approximately one-fourth (788 thousand hectares) of the land is privatized, i.e. owned by agricultural holdings, while 99.65% of those holdings are households.

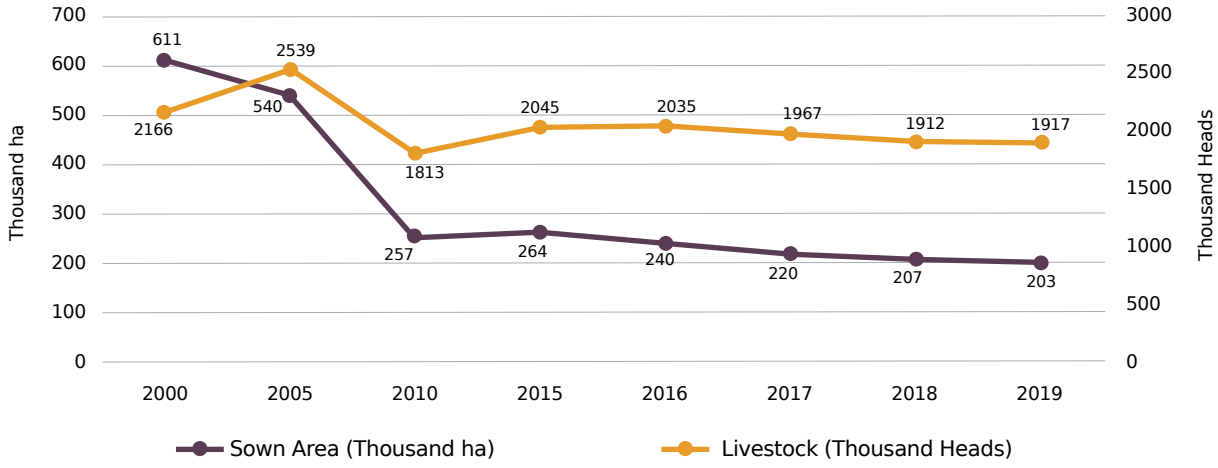
Chart 1: Agricultural land owned by the holdings by the type of use, 2014



Source: National Statistics Office of Georgia

According to the same census, 14% of agricultural land owned by holdings is occupied by perennials, 38% are meadows and pastures, and almost half is arable land. However, a third of the holdings do not cultivate the arable land they own - more than 112 thousand hectares in total. That is, 30% of arable land owned by holdings is not cultivated.

Chart 2: Agro sector statistics

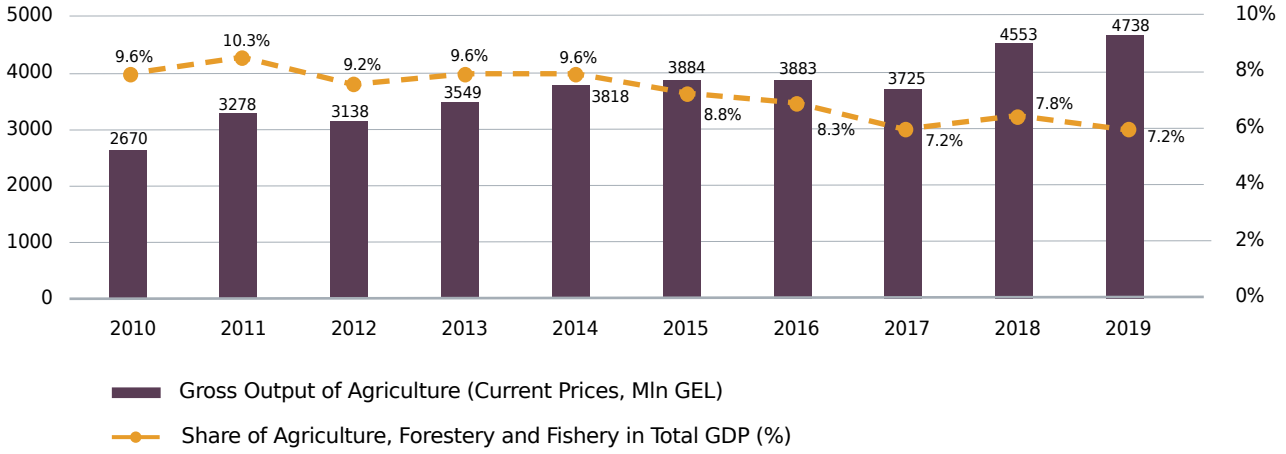


Source: National Statistics Office of Georgia; Ministry of Environmental Protection and Agriculture of Georgia

Despite the fact that the large part of land is left uncultivated by the agricultural holdings, the number of sown areas and cattle is declining, agricultural sector still paves its

way forward. Country steadily imports modern technologies and knowledge, new directions are being developed through support of state or donor projects, and free trade agreements further stimulate the development of supply chains. As a result, the volume of agricultural production is growing slowly.

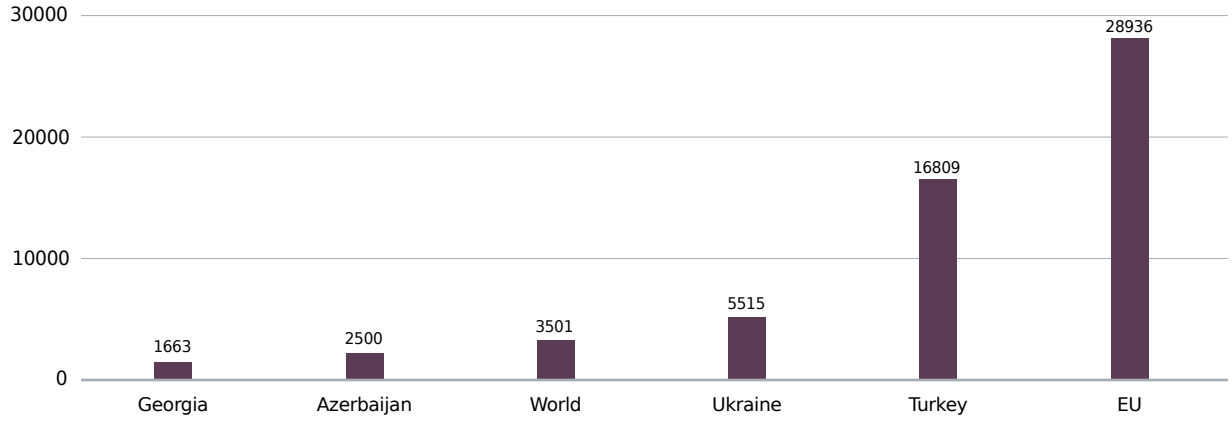
Chart 3: Gross output of agriculture



Source: National Statistics Office of Georgia

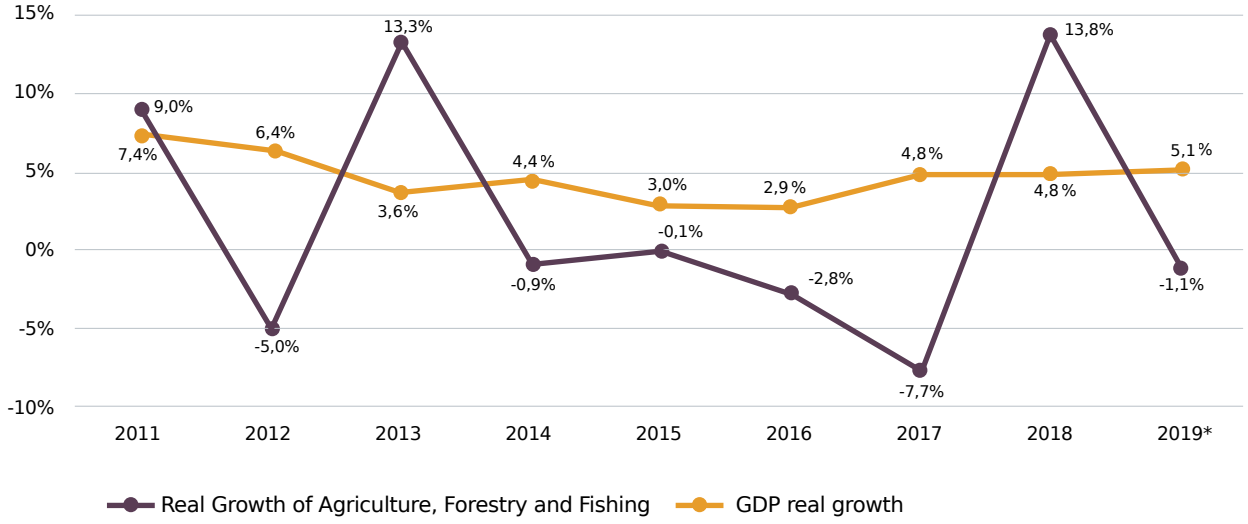
In 2019, agricultural sector produced goods worth 4.7 billion GEL, while value added created by agriculture, forestry and fishing amounted to 3.1. billion GEL, equating to 7.2% of the total value added of the country. However, despite the increase in output, the share of the sector in total GDP is declining. That is, the growth rate of agriculture lags behind the growth rate of the overall economy. Land fragmentation, low mechanization, high production cost of agricultural products, lack of relevant knowledge or outdated infrastructure hinder the growth of the sector. Moreover, cultivars with low resistance to pests and various organisms, improper irrigation and drainage systems, high sensitivity to climatic conditions, low level of knowledge and expertise - all of these significantly affect the productivity (Chart 4) and hinder the stable growth. As reflected in Chart 5, the growth rate of the agricultural sector is characterized by significant fluctuations.

Chart 4: Agriculture, forestry, and fishing, value added per worker (constant 2010 US$), 2019



Source: World Bank

Chart 5: Real growth rates of Georgia's total GDP and Agriculture (the same period of the previous year =100)



* Preliminary data

Source: National Statistics Office of Georgia

The need for industrialization of agriculture

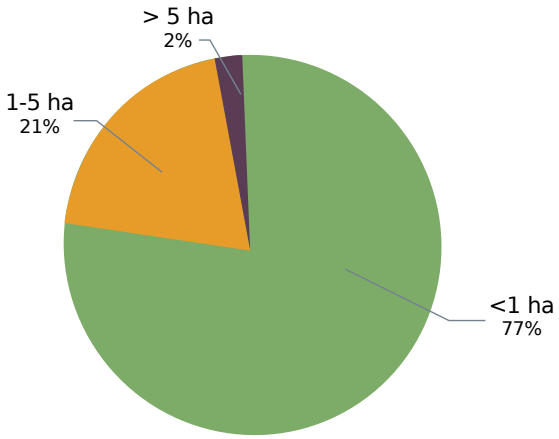
As already mentioned, agricultural land in Georgia is fragmented. Land owned by households are too small to be profitable. Experience has shown that the production cost for small farms is high, caused by the lack of proper knowledge and low standard technologies of the production process, harvesting or packaging. It is unprofitable for a smallholdings to purchase equipment and various machinery, which directly affects productivity and product quality. Moreover, due to the limited scale of production, ensuring stable supply proves to be hard. All the above components makes small farms uncompetitive in both local and export markets.

Development of industrial agricultural enterprises could be the way to solve the said problem faced by traditional family holdings. Large farms do not experience problems faced by smallholdings, nor the difficulties of access to equipment and modern technologies. At the same time, the access to the European or other export markets is easier for them.

Smallholdings

According to 2014 census, 77% of holdings own less than one hectare of land, which in turn are divided into smaller parts. Therefore, it is difficult to effectively use land plots located in different locations. Such fragmentation reduces the ability of holdings to benefit from economy of scale and specialize in the production of a single product. Households are engaged in agriculture without specific knowledge and relevant technologies. Population employed in these smallholdings are unfamiliar with modern farming practices to maintain and improve seed quality, rarely use highly adaptable cultivars or certified seed material, neither have the access to modern, efficient plant or livestock care technologies. As a result, the goods they produce are not fit for either local or foreign markets.

Chart 6: Distribution of holdings by the size of owned agricultural land, 2014

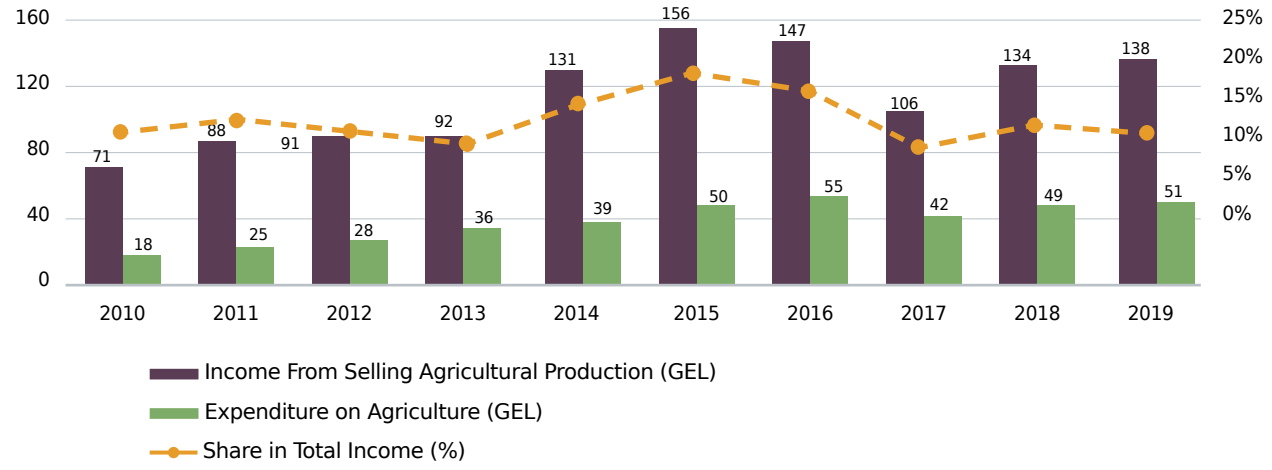


Source: National Statistics Office of Georgia

Households engaged in agriculture use most of their products for their own consumption and receive a small income from the sales. According to 2014 census, 78% of the farms produced the goods mainly for their own consumption. And in 2019, the average annual income received from the sale of agricultural products by a single household could not even reach 1700 GEL, which is less than 15% of the total household income of a rural resident.

Land registration, privatization and defragmentation and the subsequent creation of large farms will provide the opportunity to benefit from the economy of scale. The large agricultural enterprises, farms and cooperatives have relatively more potential for development than small, self-sufficient or semi self-sufficient farms. Relevant knowledge or qualified workers, access to quality agrochemicals and seedlings, access to modern technologies and financial resources, etc. - these are the factors, the combination of which determines their advantage.

Chart 7: Average monthly incomes and expanses of agriculture per household in rural areas (GEL)



Source: National Statistics Office of Georgia

Technologies and equipment

There is a significant lack of technology and equipment in Georgia:

- According to 2014 census, only 4.7% of holdings with agricultural land own a working tractor (regular and hand tractor). The low level of farm mechanization directly affects the productivity of the production.
- New technologies and technical innovations are entering Georgia at a very slow pace. There are almost no modern cultivars and seed material in the country. Farmers are not aware of the latest developments, they use old varieties, part of which is no longer in demand in the market. In order to increase productivity and meet the market needs, it is essential to introduce new, in-demand and productive crops.
- In order to maintain the quality of the product and to produce an attractive product for the export markets, it is necessary to process, sort and package it with the use of appropriate technologies.

Introduction of modern technologies, purchase of agricultural machinery and gradual automation of production requires significant expenditures, being unprofitable for

small farms. Financial strength of large farms facilitates access to modern machinery and technology. It is more profitable for them to automate the farm and invest in the equipment needed for cultivation or harvesting. Consequently, large farms are able to benefit from economy of scale, master new cultivation technologies and introduce better farming practices, which gives them a competitive advantage over small or micro farms.

Logistics

Underdeveloped logistics systems directly affect business profitability. Problems in this area, on the one hand, increase farm costs, and on the other hand, reduce income due to the deterioration of the product quality. As a result, the efficiency of agro-entrepreneurship is significantly diminished.

- **Product storage.** Apart from the lack of modern cleaning and packaging technologies available in Georgia, there is also a shortage of refrigeration and storage facilities. Only some enterprises are able to freeze or cool the product after harvesting. As a result, without proper technologies for accurate processing and storage of agricultural products, it is hard to maintain high quality.

  In 2018, 244.8 thousand tons of products were placed in cold storage facilities, of which only 79%, or 193 thousand tons were meat (beef, pork, chicken, etc.). However, in the same year Georgia produced only 73 thousand tons of meat, meaning that the cold storage facilities were mostly loaded with imported meat. In the same year, a total of 8.3 thousand tons of fruits and vegetables were placed in cold storage facilities. However, in 2018, the country produced up to 330 thousand tons of fruits[1] and vegetables, of which only 20% were exported. Therefore, about 3% of the fruits and vegetables left in the country were placed in the abovementioned facilities.

  It is impossible to store the product for a long period of time without cooling or freezing it. And without storing, it is difficult to change the existing seasonal pattern of fruit and vegetable supply, to distribute the goods evenly throughout the year, and to protect producers from sharp fluctuations of market prices.

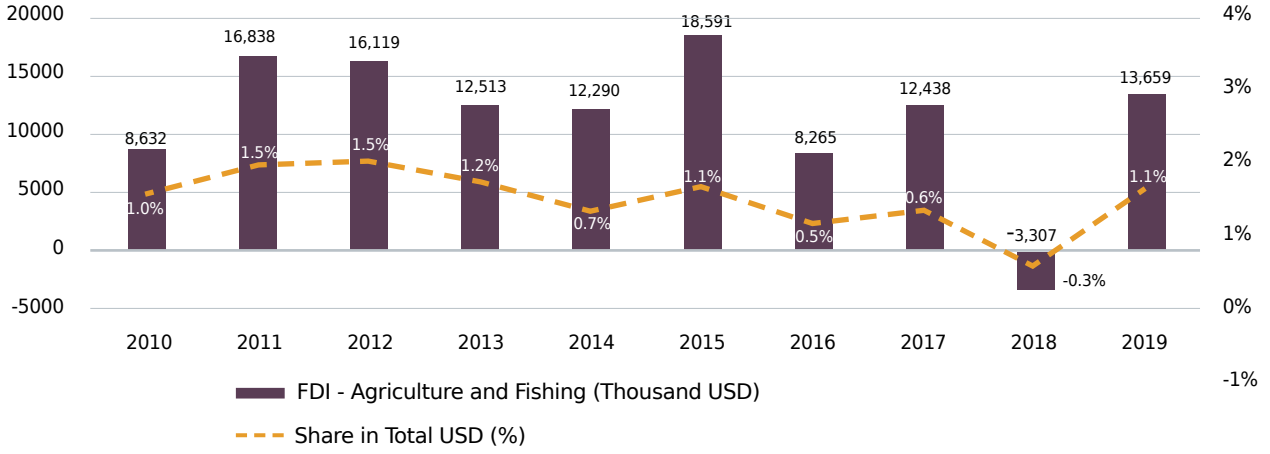
- **Transportation.** In addition to refrigeration and storage farms, the field of transportation also needs to be advanced. Bearing in mind the specificities of the agricultural product, transportation from one point to another is not so easy. Proper packaging and control of temperature or humidity is essential to maintain the product quality during the shipment. Along with the development of agricultural production, demand for more complex services arises. E.g.: a refrigerated carrier that will offer storage and other supplementary services along with transportation. However, these services will only advance together with the growth of demand on it.

[1] Except grapes and citrus.

Infrastructure

Compared to other sectors, agriculture does not attract large volume of foreign direct investments (FDI). Over the last ten years, no more than 1.5% of total foreign direct investment has been directed to agriculture. And during the period of 2010-2019, the average annual FDI in the sector amounted to 11.6 billion USD. Together with the development of the workforce, improving infrastructure is one of the most effective ways to stimulate investment. For instance, today the investor needs significant efforts and finances to connect to the irrigation system of Georgia or the main road. Proper communication makes the industry more attractive, provided that the advanced infrastructure is essential for existing and new entrepreneurs, service providers and intermediaries. A well-maintained infrastructure reduces both capital and operation costs required for farm maintenance, facilitates access to additional services and markets, and subsequently increases the profitability of projects, which will ultimately be reflected in the investment attractiveness of the sector.

Chart 8: FDI in agriculture and fishing

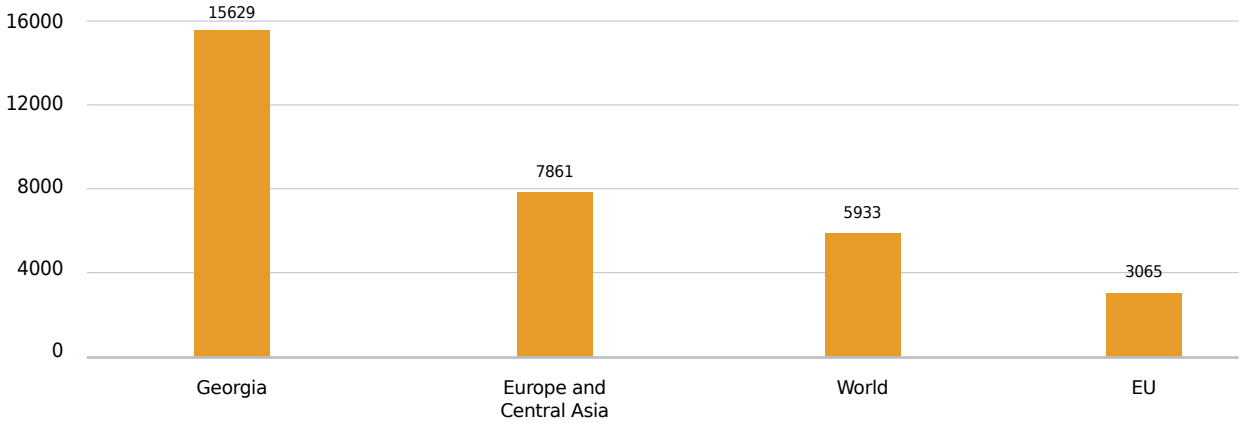


Source: National Statistics Office of Georgia

Irrigation and drainage systems

Irrigation and drainage systems have been rehabilitated in different regions of Georgia over the past few years. Thus, enabling holdings to simplify the irrigation process. by significantly increasing the water supplied and drained areas. In 2012, this number equaled less than 60 thousand hectares, while in 2019, it reached almost 170 thousand hectares. Despite the expansion and rehabilitation of amelioration system network, irrigation and drainage still remain to be a problem.

Chart 9: Renewable internal freshwater resources per capita (cubic meters) 2014



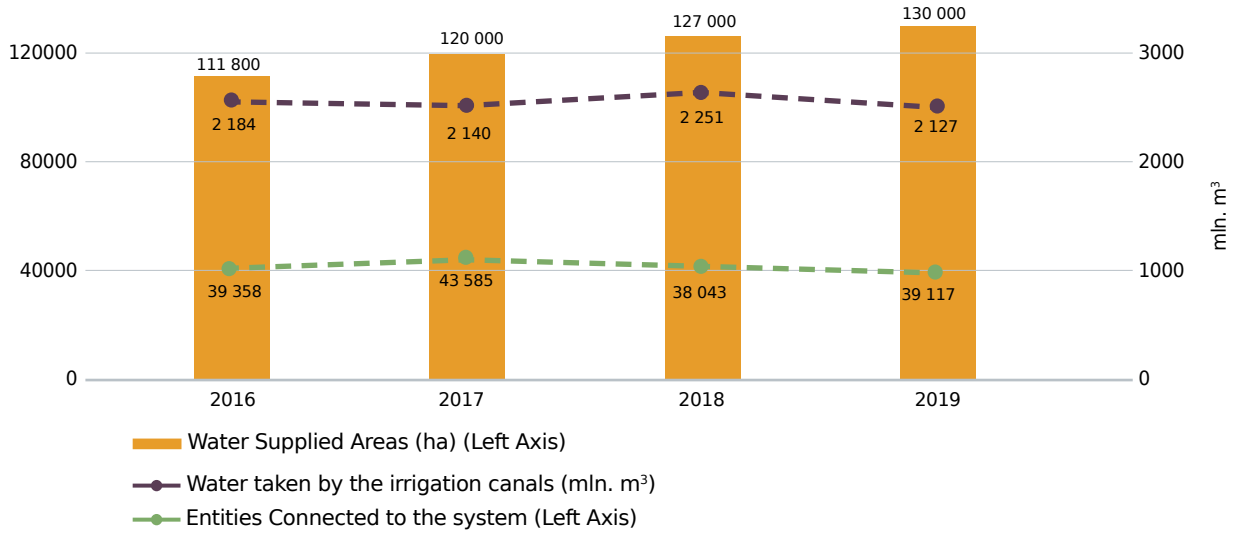
Source: World Bank

Georgia possesses twice as much fresh surface water per capita than the EU. Although the country is rich in water resources - both drinking and irrigation, many farms complain about a shortage of irrigation water. Farms in certain regions are unable to receive sufficient amount of water due to the lack of rainfall and low water debit. Water is supplied to the network on a scheduled basis for several months. Generally, water is not enough to supply the whole system during the lack of rainfall when farms mostly need irrigation water. Ensuring stable water supply is vital for agriculture. Lack of water directly affects the quality and quantity of the crop, weakens the plants and reduces resistance to pests or various diseases. Unfortunately, the Georgian Amelioration system is unable to supply water on demand and cannot even guarantee the supply in advance. Therefore, the farms are looking into other ways to get irrigation water needed for the smooth operation of the farm, so that they do not depend on the less stable supply system of Georgian Amelioration.

Also noteworthy are the fee of Georgian Amelioration services, which are fixed and rigid. Currently, farms are left to pay a fixed fee per year per hectare in exchange for receiving services (Eastern Georgia: irrigation - 75 GEL / ha; Western Georgia: irrigation - 45 GEL / ha, drainage - 40 GEL / ha). However, the existing regulation does not specify how many days per year the water shall be supplied to the customer in order to charge a fee. Current practice shows that even a one-time supply of irrigation water is a sufficient basis for the service to be deemed provided and the farm is obliged to pay the fee.

The problem of the system is also indicated by the fact that the expansion of the irrigation and drainage canals' network and the growth of the water supplied areas do not affect the volume of water taken by the irrigation canals and the number of the system users. In 2016-2019, the area covered by the irrigation network increased by 16.3% (Chart 10), while the volume of water taken for irrigation purposes decreased, as did the number of entities connected to the system.

Chart 10: Statistics of Georgian Amelioration irrigation-drainage system



Source: LTD "Georgian Amelioration"

In addition to water scarcity, unstable supply and inflexible pricing policies, farmers are complaining about uneven and unsystematic distribution of water in Amelioration system and numerous other technical shortcomings, while the purpose of the system should be to support farms and respond to droughts or floods. Furthermore, the system shall ensure efficient use of water and introduce modern, innovative management methods. Ignoring the above shortcomings in the system puts agricultural holdings at a significant risk.

Export potential - quality and image

According to industry experts, none of the agricultural product's value chains is fully developed today in Georgia. However, compared to other products, the value chain is relatively well performing in more export-oriented sectors. These are: nuts, mineral and fresh drinking waters and wine. Without organizing and developing the value chain, export of goods is difficult and requires significantly high expenditures.

Despite signing of free trade agreements and simplification of access to various export markets, agricultural products are still mostly exported to the CIS countries. The latter is triggered by simplicity of access to these markets (for example: relatively lower standards compared to European markets, easy transportation, less language barrier, etc.), awareness of Georgian products in these countries and historically established consumption habits. However, Russia, and the CIS countries in general, as a major export

market, carries economic and political risks. Apart from the risk, export concentration in these countries reveals the weaknesses in the sector. Most manufacturers fail to:

- Have competitive price and quality to enter new markets;
- Ensure compliance with safety standards and norms;
- Ensure the homogeneity of products and supply the required quantity.

In addition, Georgian products are less known to such markets and gaining credibility and changing consumer habits requires lots of effort. All the above factors hinder the process of replacing traditional markets with new ones and in particular, creates obstacles for small farms.

Furthermore, survey respondents talk about unfavorable image of the country in the European market, citing unscrupulous suppliers, as well as several cases of unpleasant cooperation of foreign buyers with Georgian suppliers. Such facts complicate the process of gaining trust and finding a trading partner. Eventually, bona fide suppliers suffer. Therefore, it is recommended to establish a mechanism that limits the possibility of product manipulation, controls and ensures the credibility of the supplier, protects the buyer from re-occurring such events, and, overall, improves the image of the country as a trusted partner.

For example, Georgia has been positioning itself in the world as the cradle of wine and Georgian wine is gradually expanding the circle of consumers in different countries. This success is a result of a hard work and must be carefully maintained. Nevertheless, in 2019, the National Wine Agency inspected only up to 750 samples, while 94 million bottles of wine were exported in 53 countries. It should be underlined that the volume of wine export is growing sharply every year, while the Agency is not strengthened and equipped accordingly at the same pace. As a result, sufficient control over the increased flow of exported wine can no longer be exercised. Proper control of export goods is necessary to maintain and increase the confidence gained in foreign markets.

Access to various types of tests and analysis is fundamental for proper functioning of the agriculture. Laboratories operate in various regions of Georgia and their services are available to anyone interested. It is worth mentioning that this service is more developed than other services needed for the agriculture. However, the private sector still deems that improvements in this direction is necessary. Agricultural holdings apply to the local laboratories just to perform some basic tests (e.g. soil testing), nevertheless, when relatively complex analysis is needed (e.g. to determine the cause of seedling damage; specific pests research), they send samples to foreign laboratories.

Laboratories are named as one of the factors hindering agricultural development, not because there is a shortage in the country, but because the labs in Georgia are unable to offer full-scale analysis to farmers. And often the components failing to be inspected locally tend to be of crucial importance in determining the compliance with product safety standards, as well as in meeting export market requirements.

Limited lab capacity is explained by high cost of the equipment, as well as the high price of the reagents required for the tests. Given the limited demand for tests in the local market, implementation of such technologies is financially unprofitable for the labs.

Obviously, once the demand is high, introduction of a wider range of lab research technologies will become more attractive and profitable. As of today, companies are left with no choice but to send samples to foreign labs, requiring more time and financial resources than they would need to conduct tests in Georgia.

Human resources

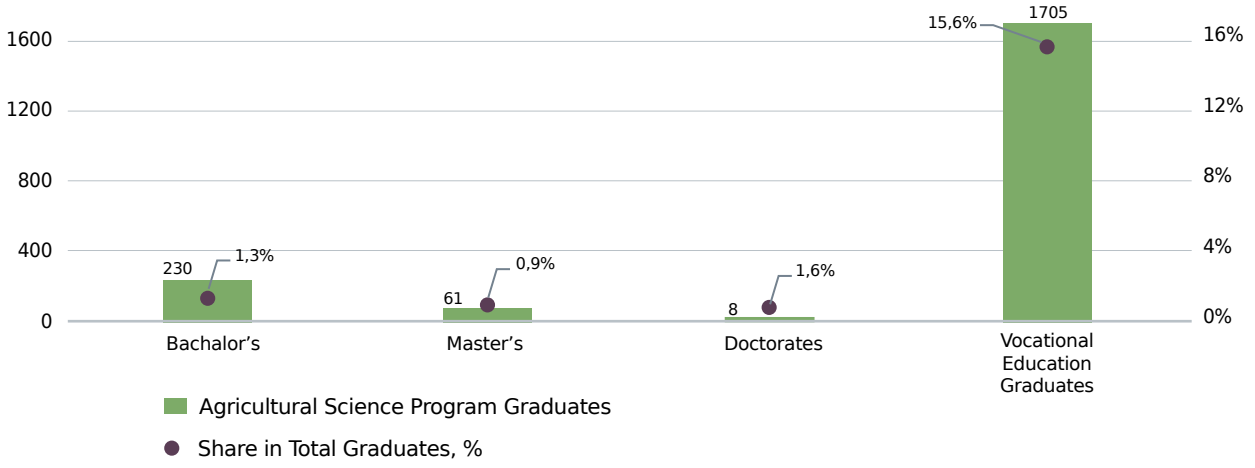
Research revealed a number of factors hindering agriculture development. However, human resources were one of the main problems. Particular emphasis was placed on the shortage of qualified personnel. There is a shortage of agronomists, experts in the field, technologists or other highly-skilled specialists in the country. In addition, it is hard to find large-scale agro-project managers, special equipment operators, technicians or support specialists. Due to the shortage of labor with high qualification and/or up-to-date knowledge in the local market, companies are forced to seek for potential employees abroad. However, employment of foreign specialists is associated with higher costs. Aside from this, due to the spread of COVID-19 and restriction of the movement between the countries, the foreign consultants have been working remotely for several months now. Online consulting is quite complicated when it comes to agriculture - plants and livestock.

The availability of highly qualified experts, agronomists or veterinarians is vital for the development of the agricultural sector. For instance, it is hard to determine the cause of the disease without a competent veterinarian; therefore, if effective measures are not taken the farm shall suffer significantly. This leads us to conclude that the education and skills relevant to the needs of the sector is one of the main challenges of agriculture. Shortage of specialists, modern knowledge and expertise in the country is felt at all stages of the value chain, in any field. And the training programs offered by the vocational education system fail to fully meet the demands of the labor market.

Generally, students at educational institutions are mostly receiving theoretical knowledge, while practical experience is acquired directly at the workplace. Agriculture is one of the fields where training of specialists without practical experience is almost impossible. In recent years, as a result of measures taken by the Ministry of Education, Science, Culture and Sport of Georgia, the interest in vocational training is gradually rising. The so-called dual education model and the work-based education is getting more and more popular. Several vocational schools successfully apply dual education approach where students taking courses simultaneously do internships in private companies. Such approach is having positive effect, however, it is insufficient to change the overall situation in the country. Widespread application of "work-based education" approach can become the prerequisite for reducing the shortage of qualified personnel in the country.

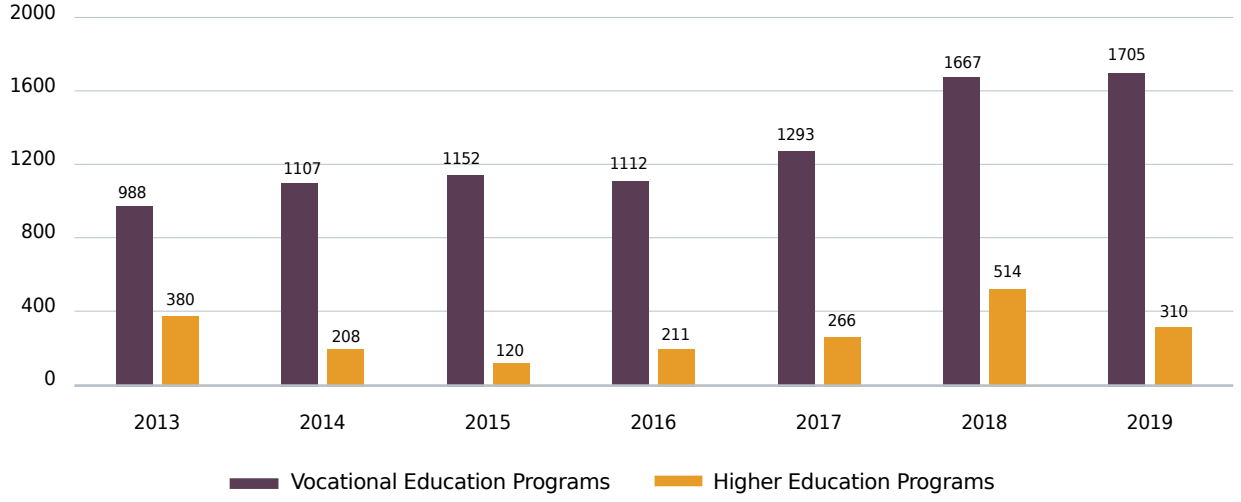
Currently, a small number of students are interested in agricultural education. In 2019, only 15.6% of 11,000 graduates of vocational education institutions studied agricultural sciences. In the same year, only 8 people graduated from doctorate studies of agriculture, which was only 1.6% of the PhD level graduates.

Chart 11: Agricultural science program graduates



Source: National Statistics Office of Georgia

Chart 12: Dynamics of agricultural program graduates



Source: National Statistics Office of Georgia

Nevertheless, the problem with human resources is not limited to the shortage of qualified specialists. Companies engaged in agriculture also face significant difficulties in finding elementary workers. Agricultural projects are mostly located away from urban areas. Unemployment is particularly high among residents in such locations and therefore, the number of socially vulnerable families in these regions are high. Temporary / seasonal employment (which is characteristic to agricultural projects, particularly in the field of vegetation) for such family members is less attractive, since it puts their social status at risk. Hence, the population has to choose between seasonal income and social assistance provided by the state. Often, people are not willing to be removed from the list of recipients of the subsistence minimum in exchange for temporary income (which is related to the cancelation of both monetary and other additional benefits). Obviously, such individuals prefer to be employed informally. However, companies refuse to agree on illegal employment. Consequently, it is difficult to find temporary (supplementary) staff needed for the proper functioning of the farm.

Moreover, some crops are widely spread in various regions both in enterprise and family holdings, and require considerable physical work at specific time of the year. During such periods, local people often prefer to take care of their own household plots and refuse offers of temporary employment. The best example to demonstrate this notion is the vintage, when the population is busy with their own vineyards and the companies have hard time finding enough work force needed to harvest the grapes.

Large holdings try to solve problems related to employing additional labor through automation and minimizing the need for manpower. However, farm automation, in turn, carries other difficulties. In addition to the significant capital costs required to purchase machinery and introduce modern technologies, the latter requires operators and other service personnel, which, as already mentioned, is hard to find on the Georgian labor market.

Focusing on education is one of the most effective and result-oriented approach for the further development of agriculture. Educational programs should be more adapted to the needs of the market, the range of specialties should be expanded, practical knowledge and expertise should be given a priority, the number of exchange or dual programs should be expanded, and in case of necessity, foreign specialists should be engaged in staff training, etc. To improve the quality of education, international knowledge and experience shall be adapted to curricula, instructors shall be trained and students and teachers shall be engaged in international projects more actively.

Insurance

Agriculture is one of the most sensitive sectors to weather and natural disasters. Adverse weather and various climatic events affect the farms and reduce their income. Avoiding these types of risks independently can be quite difficult, if not impossible. Thus, the risk insurance is of essential importance for agricultural holdings.

Despite the subsidy mechanism available in the country, the agriculture sector insurance offers limited range of insured risks. Georgia is a small country with a wide variety of agricultural crops and different climatic zones. Each region, zone or crop is characterized by a specific risk. The possibility to ensure these risks is an essential condition for agriculture sector development.

In Georgia, this opportunity is significantly limited. Current system offers insurance from few risks, such as hail, storm, flood, etc. This system is convenient for producers of specific crops. For example, for tangerines and grapes (autumn frost insurance). However, proposals do not fit the needs of many farms.

In addition to the need of insurance products based on the specifics of individual regions and climatic zones, seedling insurance is also important. Few years ago addition of seedling insurance to the state program was under consideration, although this change was not implemented. Current program only offers harvest insurance and leaves out from the program those who plant perennial crops and are planning to receive their first harvest only after several years.

Due to the above insurance limitations, agricultural holdings do not have sufficient motivation to purchase an insurance product. Subsequently, small number of insurance beneficiaries increases the risk of adverse selection; i.e. there is high chance that mostly risky holdings are using insurance services, resulting in high-risk portfolio of insurance

company. Consequently, harvest insurance becomes less attractive and profitable for private insurance companies.

It is recommended to consider the specifics of climatic zones or regions in benefit of both insurance companies and agricultural holdings. Flexible insurance product oriented on individual cases will be more attractive and will inevitably affect the number of insurance beneficiaries, that shall solve the problem of unfavorable selection. Adjusting the risk premium and diversifying the portfolio based on various factors will become a prerequisite for offering more sophisticated insurance products for agriculture sector.

State as a driver of development

In a market economy, many of the economic factors are regulated by the market itself. Any intervention by the state requires a great deal of vigilance. State should carefully consider and analyze any action, be it a regulation or a subsidy, to ensure its actions are efficient and profitable.

Underdeveloped services were named as one of the detrimental factors to the development of agricultural production. However, as it was already mentioned, some services are still underdeveloped due to limited demand. In other words, some service won't develop without proper demand on it. In this situation, government intervention can be reasonable. In the effort to find solutions to some of the outstanding issues, the study identified a few areas, where the state may intervene:

- Agricultural land. Support defragmentation of the land by privatizing state-owned land areas. By completion of the registration of the agricultural land, identify unutilized land plots and simplify access to them.
- Irrigation and drainage: As the irrigation and drainage system develops, it is essential to identify and remove system errors.
- Laboratories and quality control. Expanding laboratory capacity to meet the needs of entrepreneurs. Active quality control of export products.
- Insurance. Modification of the state agro-insurance program, as well consideration of the specifics of climatic zones and regions will make the insurance offers more suitable for the needs of farms.
- Qualifications of employees. Training the students to meet the needs of enterprises and expanding the work-based learning model.
- Availability of elementary workers. Encouraging the seasonal employment among subsistence allowance recipients.

CONCLUSION

Given the current degree of fragmentation of private-owned land, most of the households engaged in agriculture are focused on ensuring self-sufficiency and their activities do not have commercial nature. The testament to this statement is amount of household income received from the sale of agricultural products. Moreover, despite the large number of completed or ongoing projects that support agriculture, this sector still fails to achieve significant growth rate.

Underdeveloped infrastructure and logistical systems make it difficult to maintain the quality of goods and complicates the access to the market. Due to limited laboratory capacity and insufficiently developed insurance system, agricultural holdings are unable to insure production against various risks and ensure the safety of their products.

The development of the agricultural enterprises is significantly hindered by the difficulties related to human resources. The shortage of qualified personnel and the complicated process of finding employees are hampering the activities of farms. That is why it is necessary to adapt/introduce more effective methods of labor training, which will have a positive impact on the availability of specialists in the long run.

Land consolidation and the development of industrial farms shall be accompanied by an increase in the level of education, improvement of ancillary services and infrastructure, introduction of modern technologies and know-how in the sector. This will help increase productivity, significantly remove existing barriers to farms and turn traditional agriculture into a profitable activity.

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