

Georgian horticulture business opportunities

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Netherlands Enterprise Agency



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Table of contents

1 Introduction	4
1.1 Background and objectives.....	4
1.2 Project team.....	4
1.3 Methodology	4
1.4 About the Netherlands Enterprise Agency.....	5
1.5 List of abbreviations and acronyms.....	5
2 Management summary	7
3 Georgia	9
3.1 Economy and agriculture.....	9
3.2 International relations	10
3.3 Climate (change)	10
3.4 Covid-19 impact.....	11
4 The horticultural sector in Georgia	12
4.1 Macro level	12
4.1.1 Production status and trends	12
4.1.2 Organic cultivation	12
4.1.3 Market structure and chain actors	13
4.1.4 International trade.....	14
4.2 Fruit and nuts sector.....	18
4.2.1 The fruit sector in a nutshell.....	18
4.2.2 Most important fruit crops	18
4.2.3 Nuts sector	22
4.2.4 Water management and impact of climate change on the fruit and nuts sector	24
4.3 Vegetables sector	25
4.4 Ornamental sector	27
4.5 Greenhouse sector.....	28
4.6 Nurseries, seedlings and seed providers	29
4.7 UPOV membership	31
4.8 Technical suppliers and processors	31
4.9 Knowledge suppliers	34
4.10 Certification bodies.....	36
4.11 Business enabling environment / chain supporters and influencers	36
4.12 Postharvest, distribution, trade and market access.....	40
5 Other donor programmes.....	41
6 Obstacles and risks in the Georgian horticulture sector	42
7 Opportunities in the Georgian horticulture sector	44
7.1 Fruit and nuts sector (propagation included).....	44
7.2 Greenhouse sector.....	47
7.3 Climate Smart Agriculture / Water Management	48
7.4 Education and training	48

7.5 CSR opportunities.....	49
7.6 RVO (co-)financing options.....	50
Annex 1 References	51
A1.1 Reports.....	51
A1.2 Websites.....	51
Annex 2 Production statistics of permanent fruit crops 2012-2020	52
Annex 3 Modern blueberry cultivation and postharvest impressions.....	53
Annex 4 Nurseries in Georgia.....	54
Annex 5 Blueberry exports - Business Media Georgia July 2, 2021	55

1 Introduction

1.1 Background and objectives

The horticulture sector in Georgia is characterized by

- low productivity and low quality outputs as well as limited adaptation to climate change;
- a weak business enabling environment with limited support 'on the ground' by the government;
- substantial engagement of international donors but limited sustainable growth of Georgian farmers and businesses, due to lack of the right knowledge, equipment and technology.

The horticulture sector in the Netherlands has the capacity to support Georgia in increasing its productivity and quality of the horticulture sector with its knowledge and proven technologies. It also has innovative, applicable solutions for improving climate resilience, both in open field and greenhouses cultivation. Previous projects in Georgia have raised interest in 'Dutch solutions', but more focused interventions and matchmaking are required.

The principal aim of this study is:

- mapping the current situation in the Georgian horticulture and the exact needs and context of Georgian farmers and businesses, followed by informing Dutch businesses and raising their interest in the Georgian market, based on concrete business cases;
- identifying Georgian farmers and businesses in the horticulture sector with professionalization, scaling-up and internationalization potential and informing them how making use of Dutch solutions can contribute to their sustainability and profitability.

This study will be used for nudging both counterparts to do business and coming to collaboration by means of well-prepared (online) seminars, followed by virtual B2B matchmaking.

1.2 Project team

The study was carried out by a team of Dutch and Georgian experts:

- Jos Leeters (Bureau Leeters) - lead consultant / desk and field research
- Ani Kvaratskhelia (Export Development Association) - desk research macro and meso level
- David Makashvili (Export Development Association) - desk research macro and meso level
- Zviad Bobokashvili (agronomist) - desk and field research, focusing on fruit and nurseries

The business webinar and B2B matchmaking event, targeting Dutch and Georgian horticultural sector stakeholders, is the responsibility of Jos Leeters in cooperation with Tengiz Lomitashvili and Miriam Koblianidze of TBSC Consulting.

Throughout the whole project, the contact persons at RVO and the Embassy of the Kingdom of the Netherlands (EKN) in Tbilisi were Leontine Loudon, Maxime van der Kroon, Esther Valstar resp. Maia Todria.

1.3 Methodology

The study was conducted by desk research and field research in the Netherlands and Georgia in the period March-July 2021. Due to the Covid-19 pandemic, travel to and within Georgia was limited, but the team (Jos Leeters, Zviad Bobokashvili and David Makashvili) managed to conduct various on-site field visits and interviews in Georgia with sector stakeholders all over the country in the second half of June.

1.4 About the Netherlands Enterprise Agency

The Netherlands Enterprise Agency (RVO) enhances private sector development by offering different instruments and intervention types, mostly targeting Dutch SMEs which aim to expand their activities abroad.

① www.english.rvo.nl

1.5 List of abbreviations and acronyms

AA	Association Agreement
ADB	Asian Development Bank
B2B	Business to Business
BSCI	Business Social Compliance Initiative
BSO	Business Support Organisation
CSA	Climate Smart Agriculture
CSR	Corporate Social Responsibility
DCFTA	Deep and Comprehensive Free Trade Area
DGGF	Dutch Good Growth Fund
DHI	Demonstration projects, Feasibility studies, Investment preparation projects
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EKN	Embassy of the Kingdom of the Netherlands
ENPARD	European Neighbourhood Program for Agriculture and Rural Development
EU	European Union
GCCI	Georgian Chamber of Commerce and Industry
FAO	Food and Agriculture Organisation
GA	Georgian Amelioration Agency
GAP	Good Agricultural Practices
GDP	Gross Domestic Production
GEL	Georgian Lari (€1.00 ≈ GEL 3.6)
GFA	Georgian Farmers Association
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoG	Government of Georgia
GSP	Generalized System of Preferences
Ha	Hectare (10,000 m ²)
IOM	International Organization for Migration (UN).
IPM	Integrated Pest Management
LEPL	Legal Entity under Public Law
LLC	Limited Liability Company
MAR	Market Access Requirements
MoA	Ministry of Agriculture (until December 2017)
MENRP	Ministry of Environment and Natural Resources Protection (until December 2017)
MEPA	Ministry of Environmental Protection and Agriculture (since December 2017)
MOESD	Ministry of Economy and Sustainable Development
MoH	Ministry of Health

NFA	National Food Agency
PIB	Partners for International Business facility of RVO
PSD	Private Sector Development
RVO	Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland)
SMEs	Small and Medium-sized Enterprises
SRCA	Scientific Research Center of Agriculture
TVET	Technical Vocational Education and Training
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UPOV	Union for the Protection of New Varieties of Plants
USAID	United States Agency for International Development
WTO	World Trade Organization

2 Management summary

Due to its geographical position between Europe, Asia, Russia and the Near East and a lengthy agricultural tradition, Georgia has potential for more international cooperation in horticulture. Georgia's agriculture is in fact still in a transition. The decades after the Soviet collapse were hard, but since the second decade of this century, developments in agriculture are promising. However, the share of agriculture, forestry & fishery to the GDP is less than 10%. Georgia is WTO member. It has an Association Agreement with the EU and membership in the Deep and Comprehensive Free Trade Area (DCFTA) of the EU. Furthermore, Georgia has preferential arrangements and free trade agreements with many other trading blocs worldwide. It has almost 800,000 ha land available for agriculture, of which 325,000 ha are in use for permanent and annual crops. Fruit (pome and stone fruit, grapes and berries), nuts and vegetables such as herbs, tomatoes and cucumbers are leading cash crops. Hazelnuts, mandarins and peaches are the main export commodities. Berries, almonds and pistachios are runners-up. Exports find their way to various regional markets, of which the Russian market is dominant. However, it's a vulnerable, politically insecure market. Many exporters look for alternatives, such as Europe. The ornamental sector (cut flowers, ornamental plants, tree nursery) is at an early stage of its lifecycle. There's scattered cultivation in the open field and greenhouses, but most of the producers are small, with limited capabilities. The local market for flowers and plants isn't strong either.

Climate change impact

Global climate change affects Georgia, resulting in structural temperature increase, wind velocity decrease, reduction of frosty days and increase of natural disasters. Forecasts show a significant increase of risks and negative impacts on the economy and social welfare of the farmers, especially in the decades to come. Therefore, Climate Smart Agriculture (CSA) is mentioned as a priority in Georgia's government strategies. Advanced production methods and management will ensure food security through improvement of productivity and incomes, adaptation to climate change and promotion of climate change mitigation.

Small scale

Georgia's horticulture production is characterized by seasonality and small scale. Few producers have the size and (financial) means to professionalize, work with international partners and meet high-end market requirements. The majority of the producers are small or medium-sized and lack access to adequate technology, knowledge and finance. Against that background the supplying industry, often supported by international donors with grants and capacity building interventions, takes an active position in modernising the sector. Input suppliers have ties with reputable international partners in fields such as seeds, seedlings, fertilizers, agrochemicals, machinery, equipment etc. as well as knowledge services. In the past decade they increased their technology and knowledge bases and their network of outlets all over the country.

Obstacles and risks in the horticulture sector

Various weaknesses (obstacles) and threats (risks) hinder modernisation and also impede sustainable business cooperation in Georgia for Dutch horticulture businesses. The key weaknesses and risks are:

Pre- and postharvest weaknesses

- Small scale of production; no economies of scale
- Lack of knowledge and technology for competitive productivity and quality and for better adaptation to climate change
- High costs of inputs, electricity and energy
- Weak (skilled) farm management and labour force
- Weak postharvest technology and practices
- Little consolidation of produce before distribution
- Weak willingness and capacity to cooperate
- Insufficient coordination in the supply chain
- Insufficient working capital
- Weak willingness and options to invest.

Market & market access weaknesses

- Absence of a large domestic market and strong export markets
- High dependence on the insecure and vulnerable Russian market for exports
- Weak market intelligence and market awareness
- Limited knowledge about Market Access Requirements in high-end markets, such as Europe
- Only few producers have the right certifications to access high-end markets, e.g. GLOBALG.A.P. and social compliance; overall little experience and weak capacity to enter and sustain in high-end (export) markets

Business enabling environment weaknesses

- Limited support 'on the ground' for SMEs by the government
- Weak (though developing) knowledge infrastructure with respect to
 - vocational and higher education
 - applied research
 - agricultural extension
- No competitive infrastructure for distribution; weak export shipping lines compared with competing countries

Corporate Social Responsibility (CSR) risks

For SMEs active in the Georgian horticulture, risks are:

- **Human Rights and Ethics:** unsafe situations, freedom of movement, as well as separation of families in Abkhazia and South Ossetia
- **Labour Rights**
 - weak labour conditions for seasonal workers
 - child labour
 - widespread age and sex discrimination; sexual harassment of women on the work place
 - health and safety, mainly because of exposure to hazardous parasites and chemicals
- **Environment:** deforestation and pressure on biodiversity, due to monocultures and agrochemicals

Opportunities (for the Dutch horticulture sector)

The 4 most promising opportunities for the Dutch horticulture sector to start or increase business are in the fruit and nuts sector, the greenhouse sector, in climate smart agriculture / water management and in the education and training sector. Furthermore, there are specific opportunities to contribute to sustainable and responsible business practices (CSR) in the Georgian horticulture sector.

1. Fruit and nuts sector (propagation included)

- Starting materials and cultivation
- Young plants, a.o. apples, pears, berries
- Fertilizers and agrochemicals
- Soilless cultivation systems, substrates
- Modern orchard management
- Mechanisation, a.o. sprayers, weed controllers
- Postharvest technologies
- Processing technology
- Marketing and import trade, esp. berries, nuts, herbs
- Consultancy and coaching

Good perspective for a Dutch 'fruit' consortium with complementary products and services, building further on existing networks and previous projects (e.g. by [Delphy](#)), with support of RVO's Partners for International Business ([PIB](#)) facility.

2. Greenhouse sector

Imereti Agro Zone (IAZ www.iaz.ge) is in the middle of a process to create a Greenhouse Cluster in Imereti, based on an integrated chain approach, consisting of 220 ha:

- Nursery
- High-, mid-, low-tech vegs and flower greenhouses
- Logistics centre
- Training & demo centre

The park aims to supply high-value export markets. Start of land and infrastructure preparation is scheduled for March 2022.

Although the IAZ project will depend on interest of investors and shareholders and although exports markets are not yet ensured, this project is a serious opportunity for Dutch suppliers, whether or not in one or more clusters: greenhouse builders, automation, screens, irrigation, utilities, seeds, knowledge services, etc.

3. CSA / Water Management

In Georgia's open field crop production there's a need for smart technologies and modern water management solutions, in order to optimize yields and tackle the impact of extreme weather events, prolonged droughts and salinization:

- Modern on-farm irrigation and drainage
- Improved soil management and land improvement
- Data management systems and remote sensing
- Water, soil and crop (lab) diagnosis and analysis
- Water quality, - reuse and - harvesting methods
- Climate resilient (integrated and circular) farming
- Frost-protection technology

4. Education and training

The sector lacks experienced and capable human resources, especially agronomists, caused by a mismatch between education and the labour market. The main knowledge and skills needs are in the field of:

- Cultivation: IPM, smart technologies (CSA, water management), modern orchard management, organic production methods, soilless cultivation etc.
- Postharvest practices
- Market access and international sales / export

There're opportunities for Dutch consultancy companies and educational institutions to partner and offer training, coaching, student- & staff exchange and more.

5. Corporate Social Responsibility (cross-cutting theme)

Dutch organisations with a stake in Georgia may (indirectly) promote and necessitate more responsible and inclusive business practices, especially when it goes together with compliance to high-end (retail) market requirements.

3 Georgia

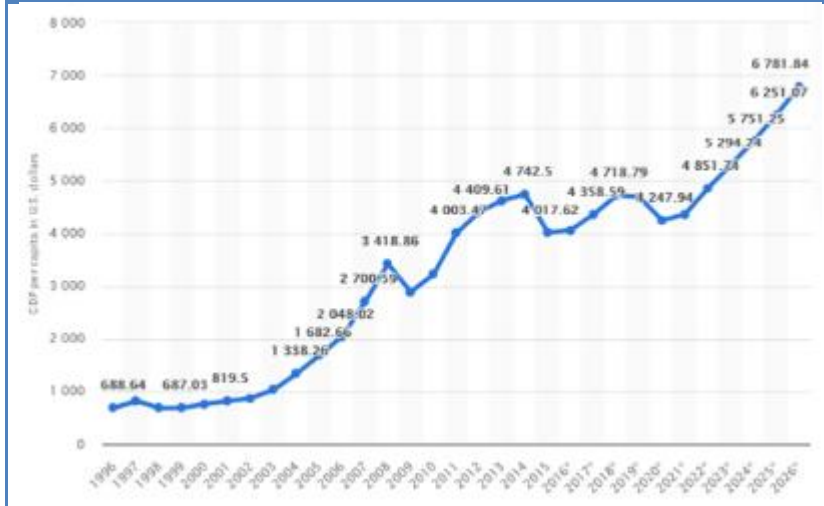
3.1 Economy and agriculture

Georgia is located in between Eastern Europe and Western Asia at the key section of the Silk Road. It is part of the Caucasus, bounded to the west by the Black Sea, to the north and east by Russia, to the south by Turkey and Armenia, and to the southeast by Azerbaijan. It covers 69,700 km² of which almost 2/3 are mountainous. Georgia has around 4 million inhabitants. It is a parliamentary republic with Tbilisi as its capital and largest city (Wikipedia).



Due to its geographical position, history and economic possibilities Georgia has grown on the international scenes as a geo-economic center between Europe, Asia, Russia and the Near East. Georgia has an immense logistics potential and a lengthy tradition of agriculture (Wikipedia). Its economy is still in a transition, replacing the Soviet command economy with market based economic principles. Results of the reforms in the last decades are a stable economic growth (5% per year from 2005 to 2019) and rapid poverty decline to 19.5% in 2019, almost half of the 2007 level. The Gross Domestic Production (GDP) per capita in 2019 amounted to around 4,700 US\$ and indicators foresee a further growth in the years to come (Figure 1).

Figure 1
Georgia's GDP per capita with projections till 2026



Source: <https://www.statista.com/statistics/441463/gross-domestic-product-gdp-per-capita-in-georgia/>

In its 2018-2020 program, the Government of Georgia (GoG) indicates the major sectors that determine economic growth: energy, environment protection, agriculture, transport, tourism, communication, information technologies. However, until now the economy has not created sufficient employment. Many Georgians remain engaged in low-productivity agricultural activities and its export basket is relatively small and undiversified. Georgia's human capital indicators, particularly in learning and linkages to private sector needs, are weak (World Bank and MEPA, UNFCCC 2019).

Agriculture always played an important role in the economy, although the share of agriculture, forestry and fishery to the GDP is less than 10% and shows a downward trend: 9.6% in 2010; 7.2% in 2019. According to the 2014 census, 788,000 hectares (ha) of the land is for agricultural use, of which 86% are owned by households and 14% by legal entities. The share of rural population is decreasing: 43% in 2015; 41% in 2019. The amount of Foreign Direct Investments (FDI) in agriculture and fishery fluctuates: between 8.2 and 18.5 million US\$ per year, except for a negative number (-/ 3.3 million US\$) in 2018 (BDO, 2020).

The responsible Ministry for agriculture is the Ministry of Environmental Protection and Agriculture (MEPA), which was established in 2017 as a result of a merger between the former Ministry of Environment and Natural Resources Protection (MENRP) and the Ministry of Agriculture (MoA).

According to the National Statistics Office of Georgia, around 120,000 ha of the land area are under permanent crops (mainly orchards and vineyards) in 2017. The area of annual crops amounted 203,000 ha in 2019. The largest production regions are:

- Kakheti - 72,600 ha
- Kvemo Kartli - 28,000 ha
- Imereti - 24,300 ha
- Samegrelo-Zemo Svaneti - 22,400 ha
- Shida Kartli - 23,300 ha
- Samtskhe-Javakheti - 21,900 ha



Source: <https://www.pngwing.com/en/free-png-vvgss>

Georgia is one of the oldest wine producing regions of the world. The fertile valleys of the South Caucasus are believed by many archaeologists to be the source of the world's first cultivated grapevines and wine production, over 8,000 years ago. Grapes for winemaking, and to a lesser extent table grapes for direct consumption, are still a leading crop in Georgia's agriculture.

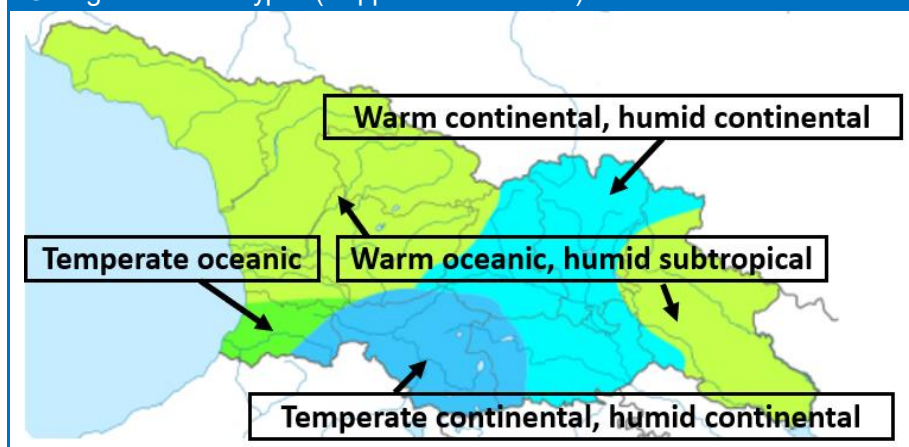
3.2 International relations

In 2000 Georgia became member of the World Trade Organization (WTO) and in 2014 Georgia and the European Union (EU) signed an Association Agreement (AA). Georgia has GSP agreements (Generalized System of Preferences) with the US, Canada, Switzerland, Norway and Japan. It has a free trade agreement with Turkey and Ukraine and preferential access to most of the countries of the former Soviet Union.

The EU and Georgia enjoy a very close and positive relationship. The 2014 Association Agreement that entered into force in July 2016 includes Georgia's membership in the Deep and Comprehensive Free Trade Area (DCFTA). Consequently, many legislative acts have been improved and brought in compliance with EU legislation. Georgian citizens benefit from visa free travel to the Schengen area since March 2017. Agricultural products exported from Georgia freely reach the EU market. The EU is Georgia's largest trading partner and the EU provides over €100 million to Georgia annually in technical and financial assistance.

3.3 Climate (change)

Figure 2
Georgia's climate types (Köppen classification)



Source: <https://nl.pinterest.com/pin/113504853093170819/>

According to Köppen's climate classification, Georgia has four climate zones, dominated by warm, humid, continental characteristics (Figure 2). More detailed classification leads to 22 (micro) climates and 49 types of soils. Global climate changes also affect Georgia. Some relevant trends are structural temperature increase, wind velocity decrease and reduction of the number of

frosty days per year. Forecasts show a significant increase of risks and negative impacts on the economy and social welfare of the farmers and other vulnerable groups. Nevertheless, there are positive impacts as well. The above has caused the necessity of a Climate Change National Adaptation Plan for Georgia's agriculture sector in 2017.

The government's vision is that Climate Smart Agriculture (CSA) has to be practiced in order to ensure food security, poverty elimination in the rural areas and sustainability of the agro-ecosystem through introduction of advanced production methods and management of climate change-associated risks (MoA, 2017). CSA was also mentioned as a significant component in the Georgian Agriculture Development Strategy (2015-2020) in relation to three interconnected challenges: ensuring food security through improvement of productivity and incomes, adaptation to climate change and promotion of climate change mitigation.

All over Georgia the frequency of natural disasters has increased, which is a consequence of the effects of climate change, combined with human activities, such as deforestation, overgrazing, etc. Georgia distinguishes three precipitation zones: dry (up to 500 mm per year), moderate (500-900 mm) and humid (over 900 mm). Historic data tell that in the period 1991-2015 precipitation changed only slightly while experts foresee that reduction of precipitation will be considerable in the second half of this century. By then the humid area will reduce almost two times and the dry area will increase, mostly on the lowlands of eastern and southern Georgia (MEPA, UNFCC 2019).

The Climate Change National Adaptation Plan (2017) addresses amongst others:

- reduction of productivity of the most crops resulting from the draughts, strong winds, unevenly distributed precipitation, hail days, heat waves and evapotranspiration growth;
- reduction of lands' fertility and growth of degradation intensity, frequently aggravated by intensive extreme phenomena caused by climate change (landslides, mudflows, floods, inundations etc.);
- loss of productivity, as a result of extreme weather events (hails, frosts etc.);
- reduction of irrigated land areas and increase of demand for irrigation water.

MEPA, with the technical assistance of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), develops the Climate Action Plan 2021-2030. It's expected that Georgia undertakes an unconditional responsibility that greenhouse gas emissions will not exceed 66% of the 1990 levels by 2030 (MEPA, UNFCC 2019).

3.4 Covid-19 impact

The Covid-19 outbreak threatens to reverse Georgia's past economic gains. Stringent measures, including curfews, a ban on public transport, lockdowns, and border closures, allowed the country to contain the pandemic's spread in early 2020. At the end of March 2020, the Georgian Farmers Association (GFA) conducted a digital and telephone survey to assess the impact of Covid-19 on agriculture. 175 farmers and agrobusiness representatives from all regions of Georgia were interviewed. Some relevant outcomes:

- imported resources became more expensive, due to the depreciation of the national currency GEL;
- difficulties to use all existing supply channels, especially because of the closure of restaurants and cafés
- opening of new channels (e.g. www.soplidan.ge, social networks, nearby shops, delivery services), but on the other side difficulties to move to online platforms due to the lack of experience;
- shortage of storage facilities;
- restricted movement of labour.

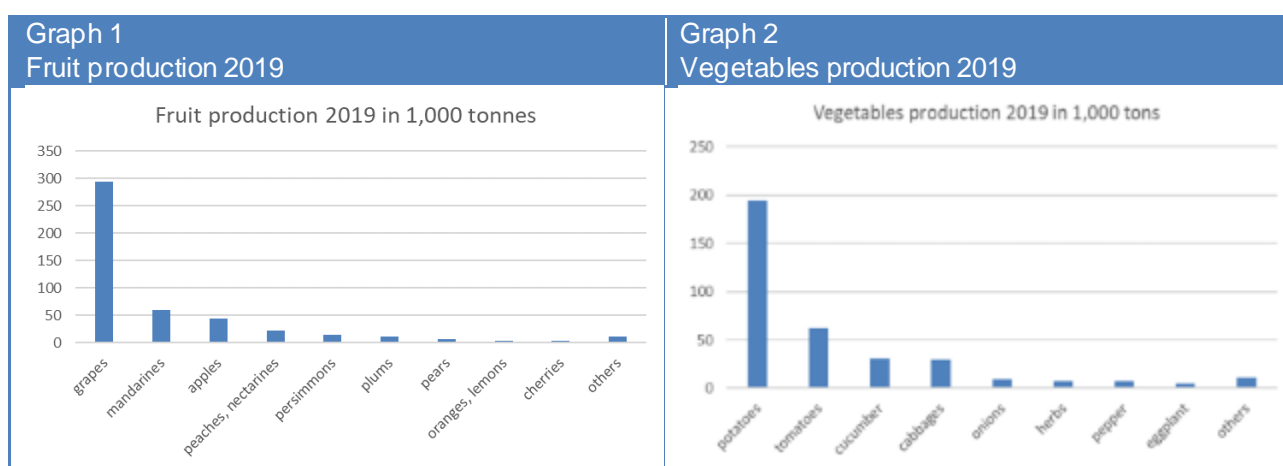
The easing of measures in the summer of 2020 contributed to a significant second wave later in 2020 and Georgia became one of the 20 most affected countries in the world in terms of reported cases per million population. The authorities enacted a second strict lockdown from November to February 2021, leading to a reduction of cases and permitting a gradual reopening of the economy, starting in March 2021 (World Bank).

4 The horticultural sector in Georgia

4.1 Macro level

4.1.1 Production status and trends

Georgia produced 471,000 tonnes of fruit (excluding nuts) in 2019 (Graph 1), of which grapes (294,000 tonnes) are by far the number one, followed by mandarins (60,000), apples (44,000), peaches and nectarines (23,000). The total volume of vegetables production in 2019 amounted 356,000 tonnes (Graph 2), of which potatoes (195,000 tonnes), tomatoes (63,000), cucumbers (30,000) and cabbages, including broccoli and cauliflower (30,000) were the largest. Besides vegetables (356,000 tonnes in 2019), corn (207,000), wheat (101,000), watermelon (68,000) and barley (54,000) are the main other annual crops.



Source: Export Development Association (2021)

The ornamental sector (subsectors cut flowers, ornamental plants and tree nursery) is at an early stage of its industry lifecycle. There's scattered cultivation in the open field and greenhouses, but the majority of producers are small enterprises with limited capabilities. A large share of the consumed cut flowers are imported. Ornamental plant production for indoor and outdoor (gardens, landscaping) is developing somewhat better, although imports still dominate the sector.

In all subsectors, but especially in fruit, the area of cultivated land and the productivity per ha show an upward trend. Zviad Bobokashvili (personal communication): "The year 2020 was the best year ever with respect to production of fruit and vegetables" So the sector in fact slowly develops towards modern farming and manufacturing practices, which is the result of active support by the GoG and international donors as well as interest from investors who more and more understand that agriculture is a business, more than just farming. Many new orchards with modern varieties have been developed recently, which is increasing Georgia's export potential. Nevertheless, sufficient infrastructure, expertise and human resources in modern farming practices and standards are still lacking. Moreover, the sector doesn't have adequate technologies and knowledge regarding postharvest management, logistics and (export) marketing and sales. This lack of knowledge and experience results in many mistakes and often the business owners don't know how and where to sell their produce.

4.1.2 Organic cultivation

The organic sector in Georgia is small. Association Elkana (www.elkana.org.ge) is functioning as the spider in the web of all organic activities. It's a member-based organisation with around 700 direct members of which several cooperatives. Elkana provides extension services, including support for farmers with regard to certification, strives for biodiversity and conservation and supports producers with business planning and

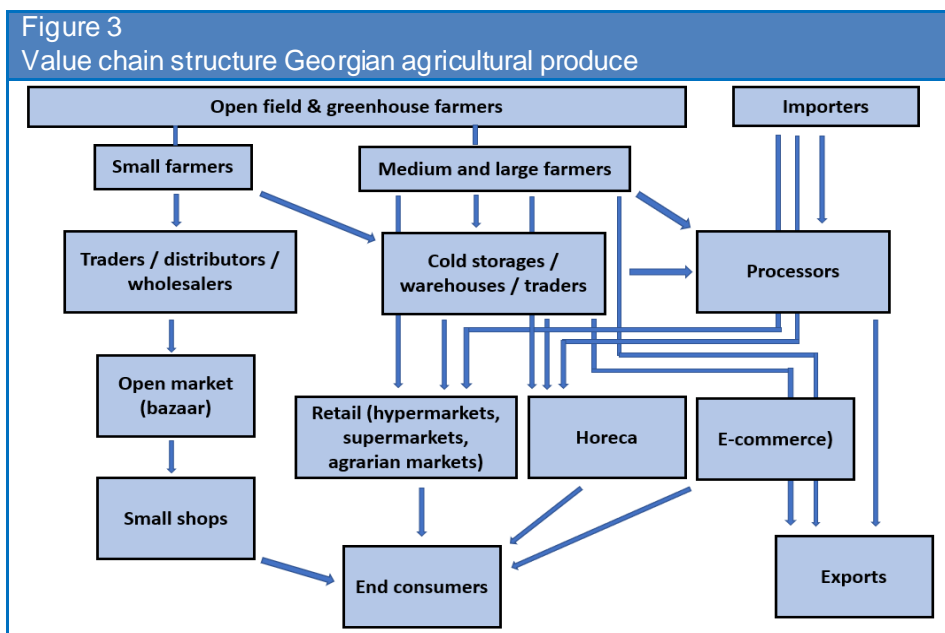
marketing. For those producers who cannot afford the costs of certification, Elkana offers the use of the Elkana logo for communication with the market as a substitute, though it's not an official certificate.

In Soviet times, organic production has never been on the agenda (focus on yield, not on quality) and that thinking is still dominant. Consumers prefer local products but they aren't interested in the production method. It means that the domestic market (purchasing power) is still weak. And it doesn't help that certification is expensive for many small farmers. However, currently more and more actors in the sector are aware that organic products can have an added value. There are examples that it even works for smaller vegetable producers and vineyards. For the larger businesses (e.g. berries), especially the ones with an export orientation towards Europe, compliance with organic standards is a feasible option.

The government didn't show much interest in the past, but now funds some organic projects and encourages international donors to support local organic producers. The government is also working on harmonization of the local organic legislature with that of the EU. There are around 4 or 5 certification bodies, of which Caucascert (www.caucascert.ge) is the main one, accredited by DAkkS since 2008 and approved by the EC to certify for the European market.

4.1.3 Market structure and chain actors

Horticulture production is characterized by seasonality and small scale. Most Georgian farmers sell in open markets or sell to local cold storage operators where additional sorting and grading is done. Cold storage operators are leading suppliers of retail chains. Part of the produce is supplied to processing factories (dried, juices, frozen, jams etc.).



Source: based on BDO (2020) and info from Export Development Association (2021)

The market share of open markets is still very significant, but the expansion of modern shopping centres and retail chains is ongoing and it is expected that bazaars and small fresh produce shops located in every district in Georgia will lose their market share to more organized market players.

Small farmers

Small farmers hold 1-3 ha land and cultivate different crops. Part of the harvest is for own consumption. As most of them cannot store fresh produce and are short in cash, they sell on local open markets. Part of them supplies products to local small traders who are further selling them to the local or Tbilisi market. One of the main clients for small farmers are local cold storage facilities, but such facilities are often rather unorganized and unprofessional. This problem had appeared in recent years when many new small berry farms were established thanks to government support, but due to lack of experience and relevant infrastructure, huge problems arose after harvest.

Medium and large farmers

Medium and large farmers hold 3 ha and more. Although they are more organized and mature, many still face severe difficulties during the season due to insufficient and unprofessional cold storage facilities. The ones that own cold storages are directly working with local supermarket chains and export their products. There is a considerable lack of knowledge in postharvest management practices, accessing foreign markets, and modern manufacturing practices.

Cold storage operators, import, wholesale and processing

Besides domestic producers, also importers, wholesalers, cold storage operators and processors play a role in supplying retail outlets and the hospitality industry. There are wholesale markets in almost all regions. Processors prefer to buy raw materials directly from farmgate because of lower prices (BDO, 2020).

Retail and hospitality industry

Retail outlets and hospitality industry are the leading channels for fresh produce in the domestic market. In the latter, tourism is important. Retail outlets are divided into 1st brand hypermarkets, supermarkets and chain stores; 2nd agrarian markets; 3rd small vegetable shops in the districts and 4th online (agro)markets.

Table 1 Retail chains		
Name	# of branches	Website
Nikora Trade	242	http://nikora.ge/
Ori Nabiji (2 Nabiji)	220	https://orinabiji.ge/
Magniti	213	
Spar	172	https://spar-international.com/
Foodmart	34	
Zghapari	25	https://zgapari.ge/
Carrefour	18	https://www.carrefourgeorgia.com/
Europduct	17	https://europduct.ge/
Fresco	8	https://fresco.ge/
Universami	7	
Goodwill	5	http://www.goodwill.ge/
Agrohub	2	https://agrohub.ge/
Smart		http://www.smart.ge/ka

Supermarkets and hypermarkets offer a broad assortment and usually have a higher share of imported goods. In agrarian markets, mostly visited by low-income consumers, the assortment is more limited, based on local, seasonal availability. The number of brand hypermarkets, supermarkets and chain stores is increasing every year. Among the largest buyers of agricultural products are the retail chains in Table 1.

Source: BDO (2020)

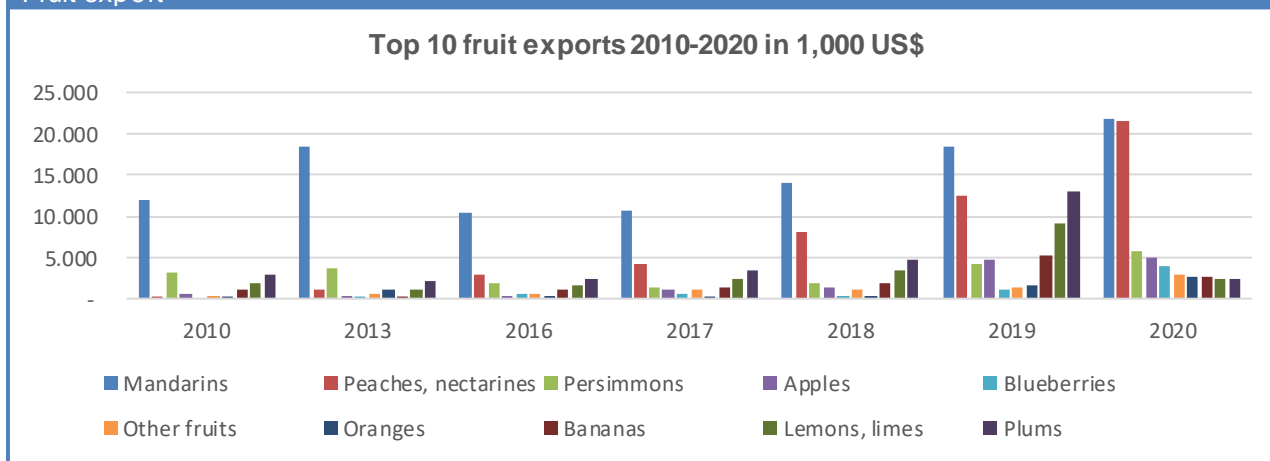
4.1.4 International trade

Hazelnuts (shell and kernel) are the largest export products of Georgia, although export figures went down from around US\$ 180 million in the period 2014-2016 to US\$ 60 million in 2019. With respect to fruits, mandarins (US\$ 22,000 in 2020) and peaches / nectarines (US\$ 21,000) are the leading fresh fruit products in exports. Blueberry (US\$ 4,000 in 2020) is a runner-up with high potential (Table 2, Graph 3 and Graph 5).

Table 2 Top 10 export of fruits (HS08) from Georgia 2010-2020 in 1,000 US\$								
Code	Product	2010	2013	2016	2017	2018	2019	2020 *)
	Mandarins	12,043	18,330	10,350	10,761	13,994	1,420	21,739
	Peaches, nectarines	186	1,066	2,817	4,256	8,190	12,480	21,449
	Persimmons	3,184	3,585	1,826	1,360	1,857	4,201	5,679
	Apples	633	345	421	1,064	1,287	4,593	5,098
	Blueberries	-	6	475	477	445	983	3,823
	Other fruits	381	513	667	993	1,215	1,455	3,013
	Oranges	40	1,186	367	237	384	1,510	2,618
	Bananas	987	76	1,008	1,296	1,843	5,360	2,542
	Lemons, limes	1,933	1,035	1,649	2,355	3,303	9,211	2,467
	Plums	2,879	2,145	2,290	3,414	4,762	13,061	2,392

Source: Trademap (2021); *) some 2020 figures may be inaccurate; newer statistics showed lower export values

Graph 3
Fruit export



Source: Trademap (2021)

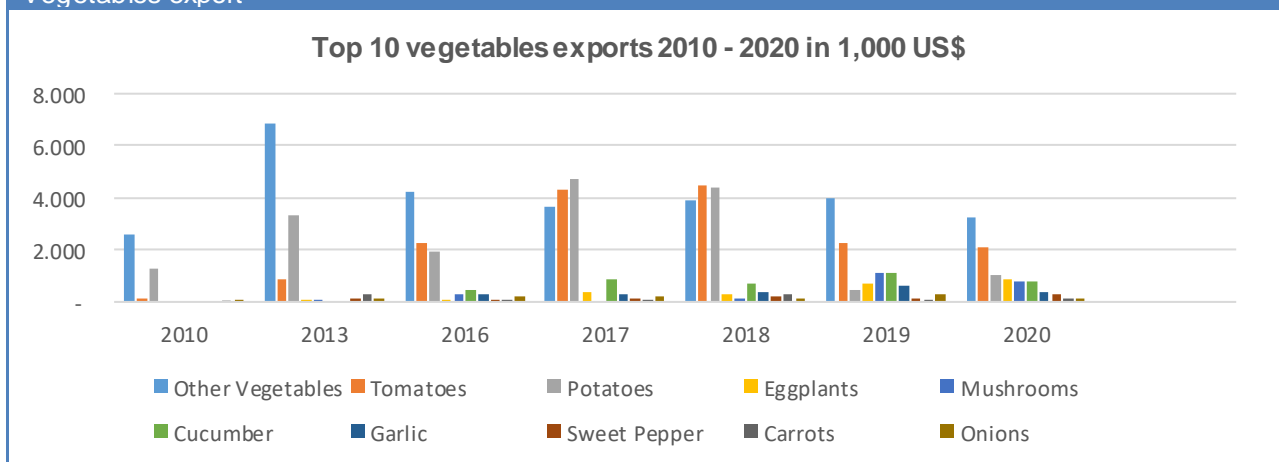
With respect to fresh vegetables the landscape of exported products is scattered and volumes are beyond the level of fresh fruits exports. On top is the group 'other vegetables' including greens and (culinary) herbs. See more details in Table 3, Graph 4 and Graph 6.

Table 3
Top 10 export of vegetables (HS07) from Georgia 2010 – 2020 in 1,000 US\$

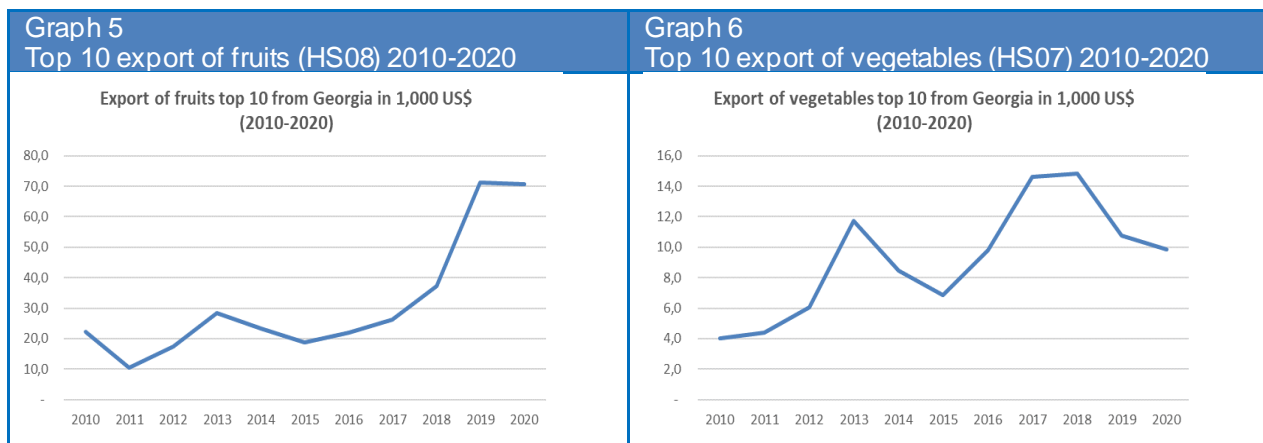
Product	2010	2013	2016	2017	2018	2019	2020
Other Vegetables	2,557	6,885	4,200	3,664	3,875	3,971	3,286
Tomatoes	116	833	2,264	4,276	4,481	2,295	2,130
Potatoes	1,257	3,359	1,957	4,754	4,360	478	1,004
Eggplants	-	10	35	398	284	734	904
Mushrooms	-	33	263	-	153	1,125	816
Cucumber	-	-	495	840	724	1,113	786
Garlic	-	-	319	292	350	595	388
Sweet Pepper	-	170	32	167	209	123	312
Carrots	82	322	36	37	306	44	122
Onions	2	119	189	172	98	279	98

Source: Trademap (2021)

Graph 4
Vegetables export



Source: Trademap (2021)



Source: Trademap (2021)

Import of fresh fruits and vegetables

Import of fruits is on a lower level than exports, but even some commodities with substantial production in Georgia are being imported, including citrus, apples, pomegranates, table grapes and watermelons. The overall level of imports is rather stable over the past 5 years (Table 4 and Graph 7). Vegetables import is at the same level as fruit import, but shows a slight decrease over the years (Table 5 and Graph 8). Onions and off-season tomatoes are the largest in volume. The main countries of origin are Turkey, Iran, Azerbaijan, China and Armenia.

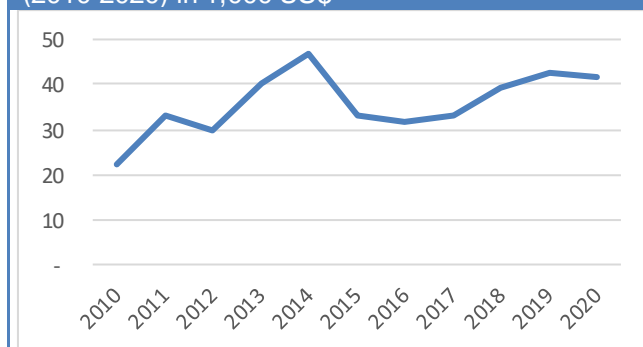
Product	2010	2013	2016	2017	2018	2019	2020
Bananas	14,250	18,370	14,424	18,583	20,336	21,365	17,624
Oranges	3,648	11,031	4,741	4,143	5,708	6,434	6,674
Apples	1,008	3,743	5,509	2,871	5,375	1,884	4,491
Mandarins, tangerines	-	118	1,304	989	707	3,176	4,361
Lemons, limes	985	2,872	1,225	1,325	1,267	1,851	2,420
Others (esp. pomegranate)	965	965	1,092	1,500	1,565	1,752	1,635
Pineapple	443	1,081	1,452	1,475	1,425	1,953	1,366
Grapefruit	269	677	522	449	517	1,102	1,129
Table grapes	-	1,220	1,309	1,196	1,756	1,627	1,059
Watermelon	677	8,370	308	471	517	1,309	873

Source: Trademap (2021)

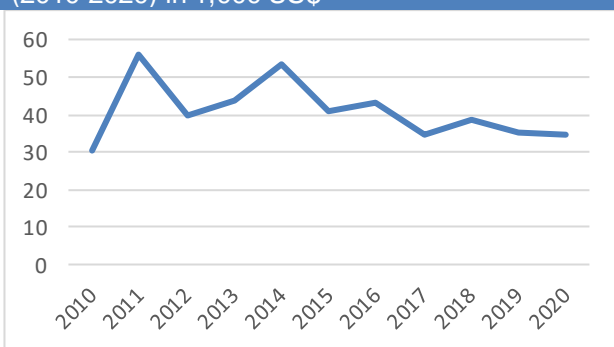
Product	2010	2013	2016	2017	2018	2019	2020
Onions, shallots	12,451	11,526	8,832	7,130	10,942	12,413	11,514
Tomatoes	4,584	9,600	9,717	7,692	8,153	5,532	5,039
Eggplant	3,868	6,362	6,260	6,100	5,812	5,155	4,417
Beans	4,386	4,545	5,115	3,094	3,786	3,057	4,332
Cucumber	2,013	3,970	3,737	3,370	3,277	3,224	2,390
Potatoes	423	1,637	4,311	2,103	2,319	1,861	1,823
Garlic	1,209	749	1,823	1,947	429	824	1,687
Carrots, turnips	609	3,441	1,404	661	1,645	1,527	1,560
Bell Pepper	760	1,489	1,381	1,417	1,450	1,203	1,061
Lentils	71	191	352	354	504	476	597
Total vegetables			37,300	31,200	33,700	31,500	29,200

Source: Trademap (2021) and Geostat

Graph 7
Top 10 import of fruits (HS08) in Georgia
(2010-2020) in 1,000 US\$



Graph 8
Top 10 imports of vegetables (HS07) in Georgia
(2010-2020) in 1,000 US\$



Source: Trademap (2021)

Import of fresh nuts in Georgia

In 2020 Georgia imported nuts for a value of around 11 mln US\$. The most imported nuts products are shelled hazelnuts, walnuts, almonds and pistachios.

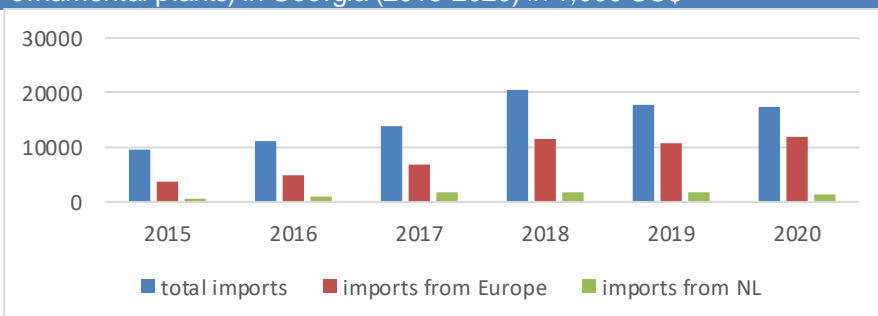
Import of ornamental products in Georgia

Georgia is a net importer of ornamental products. Import figures show a slight growth over the years (apart from a disruptive Covid-19 effect in 2020). Ornamental plants (HS0602) take the largest share of imports. Based on Trademap statistics, European countries are responsible for more or less half of the imports and the Netherlands takes a meagre 10% or less of the overall imports (Table 6, Graph 9).

Table 6 Import of ornamental products in Georgia in 1,000 US\$ (2015-2020)						
Import in Georgia from the world						
	2015	2016	2017	2018	2019	2020
Cut flowers, bulbs and foliage (HS0601, HS0603, HS0604)	3,049	3,354	2,967	5,210	2,732	1,692
Ornamental plants (HS0602)	6,577	7,870	10,864	15,136	15,146	15,553
Total HS06	9,626	11,224	13,831	20,346	17,878	17,245
Import in Georgia from Europe						
	2015	2016	2017	2018	2019	2020
Cut flowers, bulbs and foliage (HS0601, HS0603, HS0604)	240	542	500	624	531	331
Ornamental plants (HS0602)	3,309	4,382	6,529	10,795	10,345	11,450
Total HS06	3,549	4,924	7,029	11,419	10,876	11,781
Import in Georgia from the Netherlands (% of total imports)						
	2015	2016	2017	2018	2019	2020
Cut flowers, bulbs and foliage (HS0601, HS0603, HS0604)	235 (8%)	520 (16%)	490 (17%)	593 (11%)	497 (18%)	296 (17%)
Ornamental plants (HS0602)	297 (5%)	659 (8%)	1,329 (12%)	1,112 (7%)	1,204 (8%)	1,003 (6%)
Total HS06	532 (6%)	1,179 (11%)	1,819 (13%)	1,705 (8%)	1,701 (10%)	1,299 (8%)

Source: Trademap (2021)

Graph 9
Import of ornamental products (HS06 = cut flowers, bulbs, foliage and ornamental plants) in Georgia (2015-2020) in 1,000 US\$



About 70% of the cut flower imports are roses, followed by carnations (12%) and chrysanthemums (5%). Lilies and orchids take an insignificant share in the total imports (1% or less). Only during the summer a share of the imports is substituted by local production (TBSC, 2017).

Source: Trademap (2021)

4.2 Fruit and nuts sector

4.2.1 The fruit sector in a nutshell

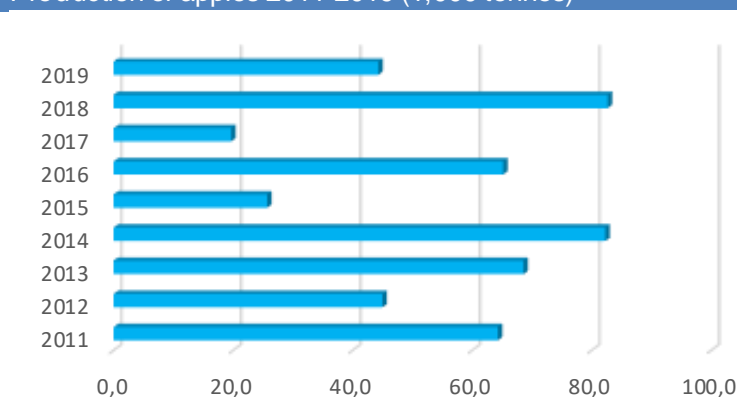
Archaeological evidence shows that in Georgia 50,000 to 10,000 years ago people used fruits for consumption. Various agricultural and horticultural tools and seeds were found in samples of the Bronze Age. Since the nineteenth century the fruit sector started to rise and became the most prominent agricultural sector with a total production of fruit of more than 650,000 tonnes and an orchard acreage of 120,000 to 125,000 ha. However, after political changes, changes in ownership structures, the sector drastically shrank in the beginning of this century and decreased to 40-50 % of the previous production figures. Many orchards were uprooted and destroyed, leaving about 50,000 to 60,000 ha. Large collective agricultural facilities (Kolkhoz and Sovchoz) were privatized and split into small parcels and as many as 700,000 land owners.

Since the past 10 years the sector recovered and is emerging now. The average fruit production is ranging from 250,000 to 300,000 tonnes per year. Production figures of 2020: pome fruit (mainly apples) 102,000 tonnes; stone fruit (mainly peach and nectarine) 63,000 tonnes; nuts (mainly hazelnuts) 40,000 tonnes; subtropical fruits (mainly persimmon) 22,000 tonnes; berries 3,000 tonnes; citrus (mainly tangerine) 57,000 tonnes, adding to a total of 288,000 tonnes. More details are in Annex 2.

4.2.2 Most important fruit crops

Apples and pears

Graph 10
Production of apples 2011-2019 (1,000 tonnes)



Apples are the most important pome fruits in Georgia. Major production regions are Shida Kartli, Kvemo Kartli, Adjara, Samkhe and Javakheti. The per capita consumption of apples is 10-20 kilograms per year. The industry was historically oriented on export, but nowadays focuses on the domestic market. The total value of production of apples in the period 2011 to 2019 ranged from 40,000 to 80,000 tonnes per year (Graph 10).

Source: Zviad Bobokashvili (2021)

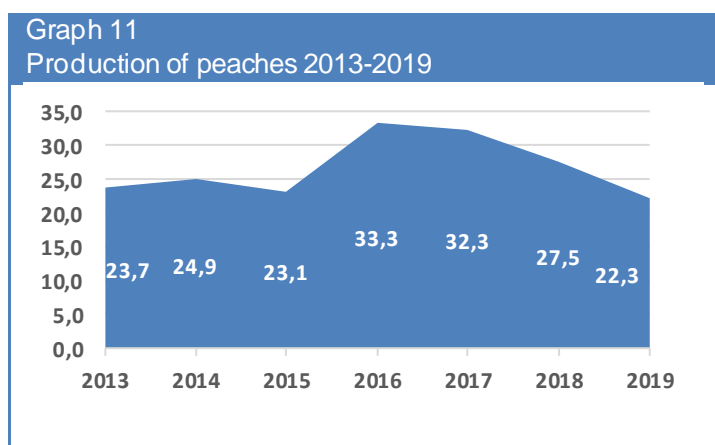
Various planting systems are seen: traditional (200-250 trees/ha), most common nowadays (800 trees/ha) and high-density (2,600 trees/ha). The latter method is being practiced on around 500 ha in the country, spread over a handful of companies.

Apple seedlings are produced locally (30-40% of the planted area) and imported (60-70%); commonly 2 year old trees. Main suppliers are Italy (large assortment; average €4.20 per tree for not patented varieties, exclusive €0.50 for transport), Netherlands (narrow assortment), Serbia and Turkey.

Pears are mainly grown in Shida Kartli and Imereti but it's a small crop; in total less than 100 ha in the country, always grown as a side-crop. Cultivation comes with various agronomical challenges (soil issues, pests) and the domestic market demand is weak. The most common varieties are local ones (the market doesn't like Conference) and most of the young trees are imported from Italy.

Peaches and nectarines

Peaches have been cultivated in Georgia since ancient times. The main production regions are in Kakheti and Shida Kartli. Local varieties include "Kakheti" (large, yellow flesh fruits), "Kartli" (crisp white flesh, good aroma and taste), "West Georgia" (small fruits, with tolerance to humidity). The total production area amounts to 3,100 ha commercial orchards and scattered trees on 1,600 ha. Average farm sizes range between 5 and 10 ha, whereas there's a recent 100 ha investment as well. Kakheti has seen a strong investment in cold storage and handling facilities in the past 5 years. Dozens of packhouses have been and are still being established in order to professionalize trade. Most of the trade is dominated by middlemen and exporters who source their peaches and nectarines in informal market structures.



The total yearly production of peaches varies from 33,300 tonnes (2016) till 22,300 tonnes (2019). The common practice of planting commercial orchards is 500-600 trees per ha (Vase method). The late spring frosts during blossoming is a major limiting factor for increasing production all over the country. Furthermore, the peach leaf curl (*Taphrina deformans*), San Jose scale (*Quadraspidiotus perniciosus*), Peach Twig Borer (*Anarsia lineatella*) and the Oriental fruit moth (*Grapholita molesta*) are main troubles for the industry.

Source: Zviad Bobokashvili (2021)

Berries

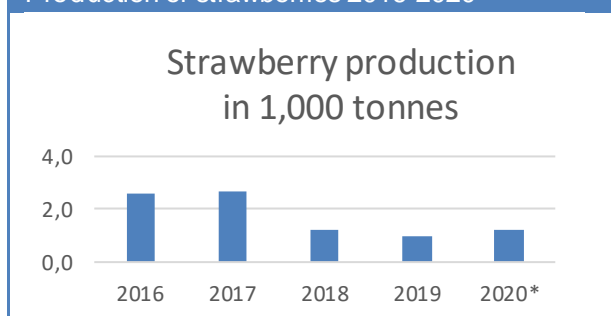
Climate and soil in Georgia create a great environment for intensive cultivation of different types of berries. Especially the 'Plant the Future' program since 2015 (see section 4.10) led to a steep growth in the cultivated area by stimulating investments in modern orchards (BDO, 2020).

Strawberries

The main producing regions are in East Georgia: Kakheti, Shida Kartli and Kvemo Kartli. In addition, some spot strawberry production occurs in West Georgia: Imereti, Samegrelo, Guria and Adjara. The annual production varies between 1,200 and 2,700 tonnes (Graph 12). The total area is around 800-1,000 ha with an upward trend with respect to average farm sizes and yields per ha. It becomes common to have farms of 2 to 5 ha and the traditional yield of 4-7 tonnes per ha, increases to 10-20 tonnes per ha on modern farms.

Traditionally, strawberries are grown in the open field. The main production window for this conventional strawberry production are April-June and August-September for the day neutral varieties. However, since

Graph 12
Production of strawberries 2016-2020



Source: Zviad Bobokashvili (2021)

a few years we see high tunnels, greenhouses (between 600 and 5,000 m²) with soilless and hydroponic technologies, allowing off-season production. Currently this happens in around 20 farms.

More than 90% of the production is sold in domestic market channels. In 2019, 90 tonnes were exported. On the other hand, in 2019 875 tonnes of strawberries were imported, near to 100% from Turkey (BDO, 2020).

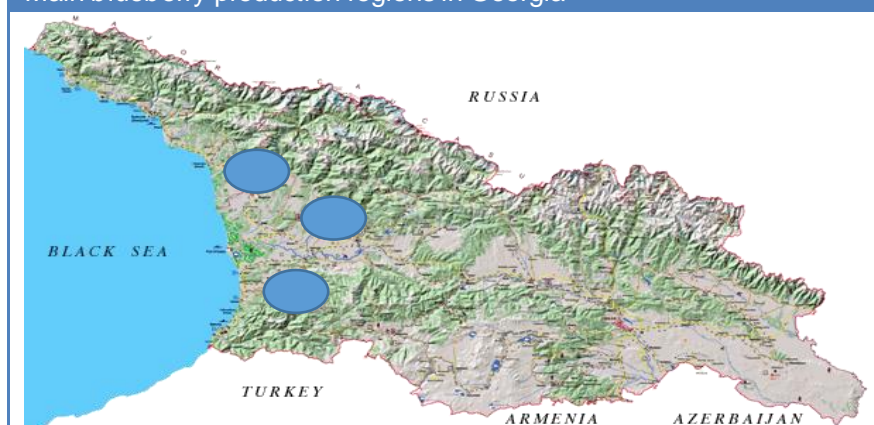
Produced varieties are a mix of advanced varieties from Italian and Californian breeders and local (Soviet) selections, such as Kakheti 1 and Kakheti 2. In modern plantations the most popular cultivar is San Andreas. There's a specific type, the so-called raspberry-strawberry with distinguished taste, aroma and appearance. Development of new varieties and adoption of advanced technologies have ample attention in research institutions, such as SRCA (Scientific Research Center of Agriculture) and Universities, as well as development projects of international organizations (FAO, ENPARD, USAID etc.).

Blueberries

Blueberries are interesting for entrepreneurs (from inside and outside the agriculture sector), due to ongoing market demand growth worldwide. Production emerges rapidly. The first experimental orchards were planted in 2005. The sector made a huge jump since 2015, after the start of Plant the Future, the subsidy program of the GoG that aims to modernize orchards. Plant the Future runs until 2023; it subsidizes 50% of drip irrigation investments and 70% of the costs for planting materials.

The main blueberry production regions are in West Georgia (Guria, Samegrelo, Adjara and Imereti), regions with predominantly acidic soils and enough water (Figure 4). Nowadays blueberry plantations reached more than 1,000 ha and the growth will continue. Besides many small farmers with orchards sizes between 0.5 and 1.0 ha, around 30 producers have 10 ha and more (see a photo impression in Annex 3) and several initiatives for large investments are on the drawing table. For business-oriented investors the high investment levels aren't a limiting factor, as long as there's a potential export market. Which is the case nowadays, both in Russia and outside Russia.

Figure 4
Main blueberry production regions in Georgia



Source: Zviad Bobokashvili (2021)

Investments for one ha reach to US\$ 35,000 at minimum. In case of full protection with net coverage against birds, rain and insects, investments go up to US\$ 100,000 and in case of container cultivation (which could also be done in East Georgia) costs would even be US\$ 170,000 to 180,000.

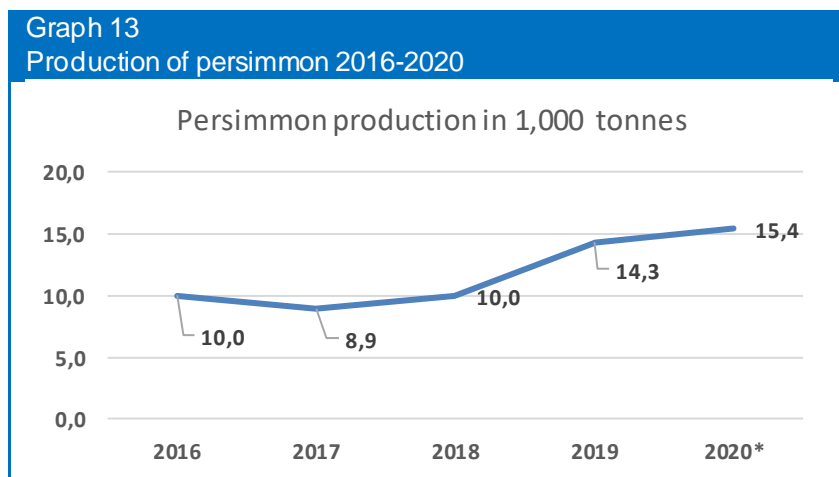
Since 2019 exports of blueberries exceed imports (in 2019 no imports and 175 tonnes export). Export mainly go to Russia, some to Ukraine and the Gulf (United Arab Emirates). However, exports to Russia (not only for blueberries) comes with pressure and headaches (see section 4.11 market access). For that reason many producers think about and actually are preparing themselves for the European market as well (BDO, 2020).

Raspberries and blackberries

Raspberries and blackberries represent a brand new emerging sector. Production volumes are strongly increasing since 2018, mainly due to the Plant the Future program (see 4.11). Blackberry orchards reached 500 ha, producing 400-600 tonnes and raspberry orchards reached around 750 ha, producing 500-600 tonnes per annum. Nowadays exports exceed imports; in 2019 400 tonnes import (from Netherlands and Finland) and 750 tonnes export (to Germany, Qatar and others). There are still imports, near to 100% from Turkey (BDO, 2020 and Zviad Bobokashvili).

Persimmons

Georgian persimmons are mainly produced in Samegrelo, Guria, Kakheti and Adjara. The production volumes account for about 5% of the total fruit yields in Georgia. Currently, the principal cultivars are Hachia (astringent type) and Khiakume (non-astringent type); upcoming cultivars include Fuyu and Rojo Briliante.



Source: Zviad Bobokashvili (2021)

The infrastructure for this crop is mainly based on very small orchards and scattered trees at household level.

Persimmons have important export possibilities. Out of the total production of 15,400 tonnes in 2020 (Graph 13), the export volume reached 10,300 tonnes, for a value of US\$ 5,679,000.

Citrus

Citrus products (mainly mandarins / tangerines) are grown in Adjara, Guria and Samegrelo. The mountain slopes (off the coast) face the best weather conditions (not too rainy and humid) during the harvest period in November and December.

Grapes (and wines)

Grapes and wines are part of the Georgian culture. Artifacts of clay vessels with wine, dating back to the years 6000 Before Christ, are supposed to be the oldest evidences of wine production by humans. The sector develops well nowadays; grape production almost doubled in the period 2016-2020: from 159,000 to 316,900 tonnes. More or less 2/3 of the produce are white and 1/3 are red varieties. According to the National Wine Association about 100,000 growers and households are involved in grapes production. The number of commercial wineries also more than doubled in the period 2016-2020 to over 1,000, of which 350 are exporting.

Figure 5
Georgia's wine regions



Viticulture and winemaking regions cover the whole country, from east to west. Key territories:

- Kakheti, the main region with the highest number of registered wines (covering more than 70% of national production)
- Kartli, known for its classic European type and high quality sparkling wines.
- Racha Lechkhumi, mostly red varieties
- Meskheti
- Imereti, the second largest region (15% of national production)
- Black Sea coastal zone (Adjara, Guria, Samegrelo, Abkhazia)

Grapes harvest falls in October - November.

Source: National Wine Agency www.wine.gov.ge

Georgia is famous for a special wine production methodology: qvevri. It's based on clay vessels, installed underground, which keeps the temperature at a constant level during fermentation and storage. The skin and juice of the grapes are fermented together, which gives the wine a specific taste of polyphenols and a golden color for white wines. Qvevri is on the Cultural Heritage UNESCO list and has been granted a Protected Geographical Indication (PGI) status.

The main challenges in grapes production are protection against hail (which requires investments in nets) as well as postharvest issues, such as storage, refrigeration and sulphur application.

Traditionally, Georgia grows grapes for wine only, but recently we see several investments of table grapes cultivation on 5-7 ha plots, often focusing on tasteful local varieties. However, many producers believe that margins for wine are usually higher and risks are lower than for table grapes. Georgia imports 1,000 to 1,500 tonnes table grapes per year, mainly from Armenia.

Wine export is important and booming, supported by professional branding and promotion. Several large industrialized wineries produce more than a million bottles per year. The total export value of Georgian wine in 2020 was around US\$ 210 million, more than 93.4 million bottles, distributed to 53 countries in the world. The key destinations are Russia, Ukraine, Kazakhstan, Poland and China.

4.2.3 Nuts sector

Nuts are important export commodities for Georgia since long. Hazelnuts and walnuts are well established subsectors, whereas almonds and pistachios are runners-up in terms of planted areas and export potential.

Hazelnuts

The main hazelnut production regions are Samegrelo, Guria, Kakheti and Adjara, as hazelnuts prefer wet conditions. Most of the hazelnut production is exported to EU markets. Since 2017 there was a drastic decline in exports, caused mainly by unfavorable weather conditions, fungal diseases and a stink bug invasion. The pest was first reported in Georgia in 2015 and the bugs destroyed a significant portion of the hazelnut harvest in West Georgia in 2016. In 2017, it was even more devastating as they struck a wider area. The government has created a strategy to control the brown marmorated stink bug problem and the industry is recovering nowadays. Harvest is more and more based on mechanization and the supply chain becomes more professional, with a clear role for consolidation centers and factories for cracking and export sales. A small farmer reaches up to 2 tonnes yield per ha; larger orchards reach up to 3.5 tonnes. Farmers get in average 6 to 7 GEL per kg (€1.70 to €1.90) before cracking, whereas the market prices are in the range of €6.00 per kg kernel.

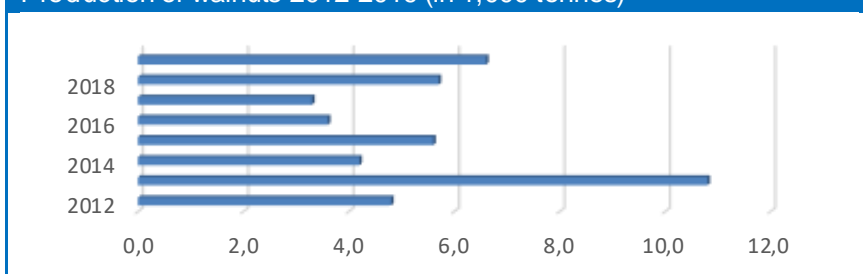
Table 7
Production data of hazelnuts by region from 2011-2019.

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Adjara	-	-	-	-	-	1.5	2.4	1.3	3.5
Guria	6.8	5.9	9.0	6.2	6.2	7.2	6.4	1.9	4.0
Imereti	4.8	3.4	5.6	3.2	4.2	3.4	2.8	1.4	1.3
Kakheti	-	-	-	-	-	1.2	2.0	2.3	3.9
Mtskheta -Mtianeti	-	-	-	-	-	0.1	0.1	0.1	0.1
Samegrelo-Zemo Svaneti	15.8	11.8	20.5	20.7	18.8	15.3	7.3	9.5	10.8
Kvemo Kartli	-	-	-	-	-	0.5	0.3	0.3	0.2
Shida Kartli	-	-	-	-	-	0.1	0.1	0.1	0.1
Other regions	3.7	3.5	4.6	3.6	6.1	0.0	0.1	0.1	0.1
Total	31.1	24.7	39.7	33.8	35.3	29.5	21.4	17.0	24.0

Source: Zviad Bobokashvili (2021)

Walnuts

Graph 14
Production of walnuts 2012-2019 (in 1,000 tonnes)



Source: Zviad Bobokashvili (2021)

Walnut cultivation is characterized by high productivity in the mountain areas of East and West Georgia at 500-900 meter above sea level, as well as in the high areas of the Racha-Lechkhumi and East Caucasus pre-mountains. Despite the suitable natural and soil conditions for

walnuts, the demand on the local market is 4,000-8,000 tonnes higher than domestic production. Georgia imports walnuts for quite high market prices. Nevertheless, some walnuts are being exported. Within the past 5 years new commercial orchards have been planted, with prospective high yield lateral bearing varieties. Chandler is the main variety. The current amount of commercial walnut orchards reached 1,800-2,000 ha, so walnut could become a main export commodity.

Walnut investments per ha vary from US\$ 5,000 to 6,000, of which irrigation takes the largest share: land preparation US\$ 1,500; trees 240 x US\$ 6 = US\$ 1,500 and drip irrigation US\$ 3,000. Georgia doesn't have a good climate for seedling production. Turkey is the strongest (most cost-competitive) supplier of young trees: US\$ 5.00 to 6.00 per tree (from Europe it's about US\$ 14.00 per tree).

Almonds

Almonds are mainly located in Kakheti, but new orchards are in Shida Kartli and Kvemo Kartli as well. The best time to flower in order to reach a stable annual almond crop in Georgia is late (after the risk of spring frosts). In recent years new plantings were stimulated by the Plant the Future project of MEPA; around 3,300 ha new orchards in the previous 5 years, of which a single 2,500 ha investment by the Adjara Group. For the new commercial orchards farmers choose high-yielding, drought-resistant, late-flowering varieties, such as Supernova, Guara, Soleta, Lorraine. Plantings are basically in 6-5 x 5-4 meter layouts. There are expectations that in the coming years, Georgia will produce 5,000-10,000 tonnes of almonds per year, mostly for export purposes.

Pistachios

Pistachios are one of the ancient cultures in Georgia, but only recently this crop gets attention for commercial production. Two initiatives in Kakheti (one on a 200 ha plot and another investment spread over smaller plots) show the interest in this potential export commodity. In the autumn of 2021 these commercial orchards will have their first harvest and expansion is to be expected over the years. Many sector actors have no doubt that the country may soon become an exporter of pistachios, as stated by Otar Anguridze, the vice-president of the Pistachio Association (<https://east-fruit.com/en/news/revival-of-pistachios-may-lead-georgia-to-exports/>). He believes that the growing demand with increasing prices on the world market and suitable conditions in Georgia encourages the sector to invest and build towards a worthy position in global markets.

4.2.4 Water management and impact of climate change on the fruit and nuts sector

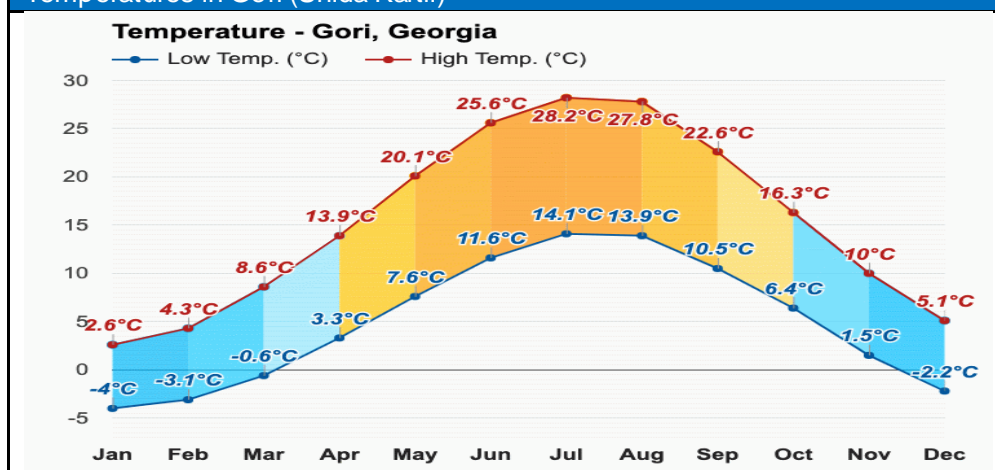
Climate in the major fruit growing regions

In West Georgia the climate is humid, warm and subtropical, ideal for hazelnuts, blueberries, persimmons and citrus (mandarins). In East Georgia the climate is more continental and arid with warm summers and cold winters; here we see pome and stone fruit, nuts and vineyards. More than in West Georgia, where over-supply of water happens now and then, irrigation is a must for professional fruit production in East Georgia.

The fruit production region Samegrelo (West) has humid, mild winters and hot summers. The sum of active temperatures is in the range of 3,200-4,200 degrees Celsius, average annual air temperatures range from 12.5 to 14.6 degrees with winter temperatures between 5 and 7 degrees. Annual precipitation is 1,300- 1,800 mm and during the vegetation period 550-750 mm.

The fruit production region Shida Kartli (East) is located on the banks of the rivers Liakhvi, Mtkvari and Phrone. Orchards are planted in a range from 580-950 meters above sea level, covering more than 80% of the commercial plantations of apples and pears in Georgia. The average annual temperature in this zone is in the range of 10.2 to 10.9 degrees Celcius. Summers are quite hot. Air temperature in July-August can reach 40 degrees. Winters are cold, sometimes with long snow coverage. The average minimum temperature is minus 8-12 degrees and the absolute minimum temperatures once in 25 year drop down till minus 17-20 degrees. The sum of active temperatures is in the range of 3,500-3,750 degrees Celcius.

Figure 6
Temperatures in Gori (Shida Kartli)



Source: <https://www.weather-atlas.com/en/georgia/gori-climate>

The vegetation period lasts 200-250 days.

The amount of precipitation is 480-600 mm per year, although the amount of precipitation in Khashuri district sometimes reaches 750-800 mm.

In Kakheti (East) the average annual air temperature varies between 11-13.5 degrees Celcius. The sum of active temperatures ranges between 3,500-4,250 degrees, with absolute minimum temperatures till minus 15

degrees once in 15-20 years. The annual sum of precipitation in inner Kakheti is in the range of 550-800 mm. In the south-eastern part it does not exceed 350-400 mm, so watering is necessary. Irrigation is possible by the rivers Alazani and Iori.

Water resources

Georgia has rich water resources. Over 20 regulated water reservoirs are constructed on a number of rivers, e.g. on the Mtkvari, the biggest river in East Georgia with several confluents flowing down from the Great Caucasus. The traditional irrigation infrastructure is based on flood irrigation through canals and furrows.

Impact of climate change (e.g. extreme weather, prolonged droughts or heavy rainfalls, salinity)

Climate change has an evident impact on fruit production. Just an example in the main hazelnut production regions: increase of average temperature with 0.5 to 0.7 degrees Celsius; increase of the average August temperature with 1.2 to 1.8 degrees Celsius and decrease of summer precipitations with 15-30 mm. It means, besides evidences of heavy rainfall, a substantial increase of drought periods and heat waves and more and more lack of irrigation water in the summer months. Especially in the dry areas of East Georgia there's a need to increase irrigation infrastructure. West Georgia is rich in rivers; here as well there's a need to improve irrigation infrastructure in order to irrigate orchards more adequately. Most of the orchards lack permanent irrigation and have problems in the summer period.

Common practices of irrigation and/or drainage

Till the first decade of this century all orchards in East Georgia were irrigated by flood irrigation through canals and furrows. Only since the last decade change took place. More than 10,000 ha of orchards were planted recently with various new systems such as drip tape and micro-sprinklers, as well as systems to optimize the amount and timing of water applications such as soil moisture sensors, tensiometers and evapotranspiration devices. The introduction of such advanced irrigation technologies results in significant increase in yields as well as more efficient application of crop nutrients and control of disease pressure.

Responsible authority for water management (national, regional, water boards)

Irrigation system management is handled by the Georgian Amelioration Agency (GA) under MEPA. GA is responsible for providing irrigation water for fruit growers. The current rehabilitation process of the existing melioration system is expected to restore irrigable areas up to 200,000 hectares by 2025.

Following the abrogation of the Amelioration Law in 2010, Georgia lacks a legal framework for irrigation. The repeal of the law also eliminated the legal basis for local level water management organizations. In 2012 MEPA and GA launched a corporate reform effort which is still ongoing, aiming to re-make GA a financially viable main system service provider with local level organizations as its clients. The process has been started to establish water consumer farm organizations. These will be farmer-governed Water User Organizations (WUOs), responsible for managing water delivery to individual farms. Retail water delivery may also be undertaken by large commercial farmers who contract with GA for bulk water supply or by municipalities with local irrigation water delivery services.

Key constraints and challenges

In order to facilitate further growth and professionalisation of the fruit sector, more improvements are required in the infrastructure of water canals to supply orchards. Another constraint is the lack of electricity delivery to agricultural lands, e.g. in order to apply drip irrigation technology for new orchards.

4.3 Vegetables sector

Vegetables cultivation takes place all over the country, with the largest scale and concentration in the centre of the country, both in the open field, tunnels and greenhouses. The main producing regions are Shida Kartli and Kvemo Kartli (around 70 % of total vegetable production) as well as Kakheti, Imereti and Samegrelo (Table 8 and Figure 7).

Table 8
Vegetables production in the regions
in 2015 and 2020 (in 1,000 tonnes)

Region	2015	2020
Imereti	27.6	16.1
Kakheti	14.8	21.1
Samegrelo	6.0	10.2
Kvemo Kartli	38.4	42.6
Shida Kartli	46.9	66.4
Other Regions	18.6	19.6
Total	152.3	176.1

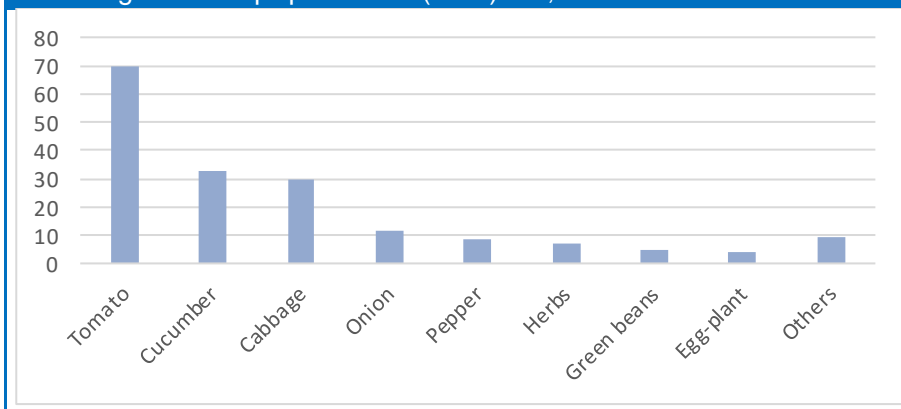
Source: Geostat, 2021

Figure 7
Production regions of vegetables in Georgia



Source: Zviad Bobokashvili

Graph 15
Main vegetable crops production (2020) in 1,000 tonnes



Source: Geostat, 2021

Potato is the largest crop in terms of area and volume. Furthermore tomatoes, cucumbers, cabbages, lettuces, (culinary) herbs as well as melons and pumpkins are being produced in large volumes. The total production is less than in Soviet times, though it is gradually increasing over the years (Graph 2 on page 12 and Graph 15)

The two key issues and challenges in the vegetable sector are small scale and absence of a strong market. Same as for other agricultural products, the Russian market is vulnerable and unpredictable. Because there's not a guaranteed market, growers (or investors) are not very interested in high investments in knowledge and technology. This makes it difficult to break the vicious circle. Nevertheless, the vegetables sector is professionalizing gradually, not least through the efforts of the domestic and international supplying industry. On an aggregated level imports of vegetables still exceed exports, but this negative trade balance is decreasing.

Some characteristics of key vegetables are:

Tomatoes

- Protected and open field; year-round available, though August is the peak harvest month;
- Production in 2008 and 2013 reached more than 80,000 tonnes; volumes dropped after 2013, but grow again since 2017; in 2019 62,900 tonnes;
- Imports exceed exports, though the negative trade balance moves to zero, due to increasing own production; in 2019 14,600 tonnes import; 1,900 tonnes export;
- Export: mainly to Russia (>80%); other destinations are Moldova, Belarus, Ukraine;

- Import: mainly from Turkey, but also from Iran, Azerbaijan, Russia, Armenia and Netherlands;
- Georgia can grow more tomatoes but there're are easy markets; in Russia Georgia cannot compete in price with Turkish tomatoes (BDO, 2020).

Cucumbers

- Protected and open field; year-round available;
- Production volumes increase since 2015; in 2019 30,000 tonnes;
- Imports exceed exports, though the negative trade balance decreases; in 2019 8,900 tonnes import; 1,200 tonnes export;
- Exports go almost 100% to Russia, mainly Dutch varieties (18-21 cm);
- Import: mainly from Turkey, but Iran is gaining a position, due to its lower prices (BDO, 2020).

Eggplant

- Mainly open field (greenhouse production faces pollination problems); production volumes increase since 2017; in 2019 4,400 tonnes;
- Imports exceed exports; in 2019 6,900 tonnes import and 600 tonnes export;
- Import: mainly from Turkey, but Iran is gaining a position (BDO, 2020).

Pepper (sweet and hot)

- Mainly open field; production volumes increase since 2017; in 2019 7,100 tonnes;
- Around 2/3 is hot pepper and around 1/3 is bell pepper;
- In the open field, producers more and more plant with plastic mulch, using drip irrigation;
- Imports exceed exports; in 2019 3,700 tonnes import and 100 tonnes export;
- Import: mainly from Turkey (>90%) and some from Iran, Armenia and Netherlands (BDO, 2020).

Herbs

- Parsley is the number one and Imereti is the main region; mainly tunnel and/or greenhouse production;
- Production volumes between 7,500 and 8,000 tonnes per year;
- Exports exceed imports; in 2019 1,000 tonnes export and 400 tonnes import;
- Export: mainly to Russia (BDO, 2020).

Onions

- Around 70% of the total production is in Qvemo Kartli (Marneuli and Bolnisi) and Shida Kartli (Gori and Kareli); the production scale varies from small (0.5 ha parcels) to medium (10 ha max.); red and purple varieties are dominant
- Advanced farmers reach yields up to 60 tonnes per ha.

Garlic

- Becoming a popular product; around 70% of the production is in Shida Kartli (Gori, Kareli); all in the open field with overwintering;
- Two types: Georgian and Russian types.

4.4 Ornamental sector

The ornamental sector -cut flowers, indoor and outdoor plants- is small and still at an early stage of its lifecycle. Cultivation is scattered all over the country, but due to the proximity of the capital with its large population, most of the open field and protected cultivation is situated close to Tbilisi. A study by TBSC in 2017 indicated that Georgia has a market size of about US\$ 4.5 million. Demand is very seasonal, reaching peaks during celebration days. There are no signs that this situation has changed since then. Most growers are small enterprises, lacking modern production and farm management practices, and are not financially capable to invest in modern starting materials and modern cultivation facilities. Furthermore, the market structure is immature and there's little to no cooperation between the actors in the chain. A large part of the imports is in the hands of a few players who have done imports for a long time already; they supply retailers (such as flower boutiques) or have their own wholesale points in open markets. There are dozens of online flower shops, but the size of this market is not so large. The Netherlands is one (though not the largest) of the supplying countries for a wide cut flower assortment, due to its one-stop-shop proposition and efficient trade mechanisms. Furthermore, Dutch exporters of bulbs send tulips and lilies to Georgia now and then, but so far the volumes are small and on an irregular basis.

The demand for ornamental plants for indoor use, gardens and landscaping, seems to grow. This subsector is depending on imports; exterior plants mainly come from Italy and the Netherlands and interior plants mainly from the Netherlands. Several businesses import from the Netherlands by truck on a regular basis.

Five years ago a 1 ha 'Dutch-style' greenhouse was built just outside Tbilisi with a Dutch partner, meant for ornamental plant production. The greenhouse is still in operation, but the owners found out that it is very hard to develop a profitable long term business case in Georgia with a greenhouse proposition in this sector. The main obstacles are:

- absence of stable sales channels; difficult to realize vertical integration;
- lack of infrastructure
- not available or expensive input supplies (no economies of scale) and high energy prices;
- lack of human resources at all levels, especially agronomists.

4.5 Greenhouse sector

The Imereti region by far has the highest number of tunnels and greenhouses in the country, with a concentration in the municipalities Tskaltubo, Samtredia and Baghdati. More than 3,000 small-scale, several medium and 2 large commercial greenhouses are involved in the cultivation. The region is known for typical crops for the Georgian cuisine, such as leafy vegetables, herbs (especially parsley, fennel, dill, coriander and celery), tomatoes, cucumbers and sweet peppers. Due to the unique taste and fragrance, as a result of microclimate conditions, "Kutaisi Greens" has a protected Geographical Indication. The majority of the greenhouse owners grow vegetables during the spring, summer and autumn season and herbs in the off-season. Some of the greenhouses also produce berries.

Two large greenhouse operations are based in Imereti: Herbia in Tskaltubo and Imereti Greenery in Samtredia. Herbia is a Georgian business; it grows and packs culinary herbs and vegetables in 3 ha mid-tech greenhouses and doesn't use chemical fertilizers or insecticides. A modern refrigerated warehouse with 2 packing lines made Herbia a pioneer in packaged herbs for domestic retailers. Imereti Greenery is a Dutch-Georgian partnership, established in 2016, cultivating lettuces (hydroponics) and tomatoes for the domestic (mainly hospitality industry) and export markets in a 2 ha high-tech greenhouse. A third commercial, high tech greenhouse is Planta in Gardabani, south-east of Tbilisi. Planta grows tomatoes, cucumbers and sweet peppers in a 12 ha greenhouse and is affiliated with the marketing company Georgian Agro House. Besides exports to Russia (30%), the products are being distributed to domestic retailers (70%) under various brands and concepts. The company has its main distribution centre in Tbilisi and branches in Batumi and Kutaisi. All three greenhouse operations have been constructed and are being operated with Dutch suppliers.

Although the Imereti region has the potential for export to high-end markets, it doesn't happen so far, except to Russia. The cause lies in various threats and weaknesses, of which the most important are:

- insufficient knowledge and cultivation practices to cope with the climate and weather conditions, e.g. inappropriate use of chemicals and other inputs;
- lack of experienced human resources, e.g. qualified agronomists;
- lack of scale, making it difficult to justify investments in advanced technology and certifications;
- high electricity and energy costs, making it difficult to justify high-tech solutions (e.g. artificial lightning);
- limited post-harvest infrastructure (packing houses, cold storage) and lack of value addition;
- limited development of domestic distribution services and lack of export infrastructure; no cargo terminal in the Kutaisi airport and limited direct cargo flights from Tbilisi;
- strong competition from low-cost producers (e.g. Iran), countries with larger scale and more professional infrastructure (Turkey), stronger government support (Azerbaijan) or better ties with Russia (Armenia)
- a small and weak domestic market and a high dependence on single export markets (Russia) with unstable political relations, which creates risks of export disruption;
- little awareness and readiness for exports to high-end markets such as Europe and the Gulf region.

Under MEPA's Rural Development Agency (RDA), Imereti Agro Zone (IAZ) is an initiative to modernize the greenhouse sector by creating a cluster in Imereti, based on an integrated chain approach. With the support of an international expert consortium, IAZ developed the agro-park concept, acquired 2 plots of land (total 220 ha) and strives to start with land preparation and infrastructural works early 2022. The concept is based on the ability to supply high-value export markets. More details about IAZ are in section 7.2.

4.6 Nurseries, seedlings and seed providers

During the Soviet period nursery tree production was a state responsibility. Young fruit tree production (yearly 15 to 20 million saplings) took place in large industrialized farms. After the Soviet period the nursery sector significantly declined, but started to grow again in the second decade of this century when new semi-intensive orchards were established. Here again, the trigger for this growth was the subsidy program Plant the Future (see section 4.10). Seedlings of berries and almonds are in highest demand currently.

According to 2019 data of the Scientific Research Center of Agriculture (SRCA) around 80 nurseries are registered and operational. However, experts assume that in practice 120 to 140 are involved in nursery tree production, of which 25 to 30 are serious enterprises. The size of nurseries varies. The largest produce up to 400,000 trees per year, but the majority are medium (110,000 to 200,000) or small (20,000 to 50,000 per year). Hazelnut nurseries basically are located in West Georgia, pome and stone tree producing nurseries as well as grape nurseries mainly in eastern and central regions. In Annex 4 the most important ones are listed. An estimated 6 to 7 million fruit trees and 0.9 to 1 million strawberry plants are being produced on a yearly basis. See Table 9. Common prices of locally produced saplings are in the range of 3 to 6 GEL (€0.8 to 1.8).

Table 9
Yearly production of young fruit trees and berry plants

Name	Yearly production of young trees
Grapes	3,000,000
Pome fruit (apple, pear)	920,000
Hazelnut	620,000
Other (non-traditional nuts, incl. almonds, walnuts, pistachios)	700,000 to 750,000
Berries (raspberries, blackberries, blueberries)	750,000 to 800,000
Total fruit trees	6,000,000 to 7,000,000
Strawberries	900,000 to 1,000,000

Source: FAO ENPARD nursery project, 2019

Photo impressions



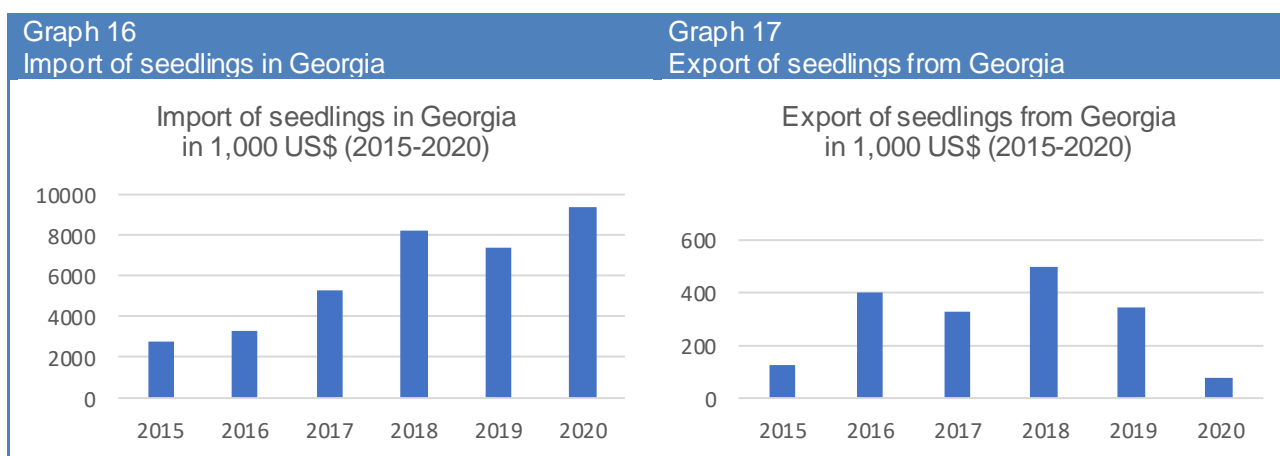
Grafting process in Kakashvili nursery,
Gori, Skra



Ready plants for sale, Complex Agro nursery,
Kareli, Bebnisi

Source: Zviad Bobokashvili

At the same time imports of seedlings (in particular walnuts, hazelnuts, apples and blueberries) are increasing rapidly, due to the fact that there are no high-quality nurseries in Georgia that can provide disease-free certified materials. Investors of new plantations are more and more willing and prepared to buy protected varieties with higher sales potential on global markets. The value of seedling imports increased from US\$ 3 million in 2015 to more than US\$ 9 million in 2020 (Graph 16). Key importers are Italy (apples), Turkey (walnuts) and Spain (almonds). Other players are the USA and Poland (blueberries), Serbia and the Netherlands (apples) as well as neighbouring countries Azerbaijan, Ukraine and Armenia (personal communication Zviad Bobokashvili). On the other side Georgia exports hazelnut, persimmon and some subtropical trees (Graph 17).



Source. Geostat, Trade information, 2021

Propagation methods are rather traditional. Pome fruits, stone fruits and grapes are basically produced by grafting, whereas for hazelnut and berries vegetative propagation (layering, sprouting and cutting rooting methods) is common.

Key weaknesses of the nursery sector are:

- Phytosanitary issues; lack of high quality planting material (certified & disease-free mother plants); the Ministry (MEPA), with support of donors is currently working on improvements by introducing a certification system for tree production;
- Pests and diseases;
- Finding capable workers and staff;
- Rapid changes in the market demand in terms of volumes and varieties;
- Marketing and sales (against the background of a weak market structure and increasing price competition in international markets).

Within the Plant the Future program, the Regional Development Agency (RDA) under MEPA has listed 17 seedling providers on its website https://rda.gov.ge/projects/read/plant_future/20:child, who are contracted for providing fruit seedlings to project beneficiaries. Note that these are not necessarily nurseries. The main companies are:

Table 10 Largest suppliers of fruit seedlings in the Plant the Future program	
Name & website	Activities
Agromax Décor http://www.ag-decor.com/ge/	Provides mostly decorative plants: trees, shrubs and perennials. The company imports plants from Poland and has its own nursery in Georgia
Sakartvelos Agraruli Gaertianeba	Partnering with Hartmann's Plant Company (USA). The company supplies blueberry, apricot, plum and other fruit seedlings

Agritouch www.agritouch.ge	Consulting, farm management and agricultural input supplier. Partners with Polska Borowka (Poland) and Fall Creek (USA). Supplies agricultural materials, including blueberry seedlings, mulch and more
Blueberry Production Partner http://bpp.ge/en/	Supplies peat moss, mulch and blueberry seedlings. Partners with Multibaies (France), UAB Linkona (=Peatman) (Lithuania), Fairplant BV (Netherlands) and Jut Cuval (Turkey)
Green Solutions http://green.com.ge/ka	Offers farm management and design, installing anti-hail and drip irrigation systems, constructing greenhouses, and providing seedlings of different fruits and berries. Partners with Vivai F.lli Zanzi (Italy) and Rivulis (Israel)

Seeds

International seed suppliers (including the main Dutch ones) are all represented in Georgia through generic technical suppliers, usually in combination with fertilizers, crop protection and machinery (see Table 10).

4.7 UPOV membership

Georgia became a member of UPOV (Union for the Protection of New Varieties of Plants) in 2008 on the basis of the UPOV 1991 Act. Registered crops in UPOV's system are Apple, Barley, Blackberry, Blueberry, Cherry (Sweet Cherry), Chick-Pea, Field Bean, French Bean, Hazelnut, Lentil, Maize, Oats, Peach, Pear, Potato, Raspberry, Soya Bean, Sunflower, Tomato, Walnut and Wheat. Information regarding completed and in progress applications are being registered in the Official Bulletin For The Protection of New Plant Varieties and Animal Breeds and can be viewed in the Sakpatenti website: www.sakpatenti.org.ge.

In August 2021 Sakpatenti announced that in the near future DUS tests will be possible in Georgia (https://www.sakpatenti.gov.ge/en/news_and_events/379/). DUS tests check the distinctness, uniformity and stability of new varieties of plants. The new arrangement, which facilitates registration and obtaining of exclusive rights for plant varieties, will save costs for breeders and aims to facilitate the development of breeders, seed producers and sapling nurseries. Besides Sakpatenti, other involved parties are FAO, SRCA / MEPA and the Georgian Seeds and Saplings Association (GEOSSA). To date there is no entity authorized to conduct the DUS test in Georgia. UPOV will further support Georgia with the legal process and with establishing the new testing body.

4.8 Technical suppliers and processors

Local input suppliers are developing well since the past two decades. Small shops expanded, improved their products and services, transformed into modern operations with a wide distribution over the country and work with world-known international suppliers. Four companies currently have more than 75% of the market (Agrocom, Agrosphere, Bornagro, Cartlis), but quite a large number of medium and small input suppliers provide adequate services and also represent international suppliers. According to 2020 figures of the National Food Agency (NFA), more than 250 outlets provide technical supplies, compared with 150 in 2015 (personal communication Zviad Bobokashvili).

Although various suppliers provide multi-products and in many cases additional advisory services (extension, training), they're divided here in 4 categories: 1. fertilizers and crop protection; 2. irrigation systems; 3. machineries and 4. postharvest equipment and facilities. In this section also a paragraph about processing companies.

Fertilizers and crop protection (agrochemicals), IPM

Except for N-fertilizers, of which Georgia is an exporter (Ammonium Nitrate NH_4NO_3), all other fertilizers are being imported. The same counts for agrochemicals. Turkey, India, China, Russia, Ukraine, Kazakhstan, Azerbaijan and EU countries are the main sources. The amount of imports doubled during the past 5 years and reached a value of around US\$ 30 million per year, of which more than 50% are fungicides. See Table 11. Whereas worldwide the use of herbicides is larger and increases, in Georgia the share is less than 20%

of the total pesticide use. Within the sector one believes that the pesticide market will reach a value of US\$ 40 to 50 million in 2030 (personal communication Zviad Bobokashvili). Besides distribution of imported supplies, there's some manufacturing of agrochemicals, in particular a range of organic pesticides, answering the growing interest for organic cultivation methods.

Table 11 Import value of pesticides in Georgia (2015-2020) in 1,000 USD						
Pesticide type	2015	2016	2017	2018	2019	2020
Fungicides	6,607	8,173	11,581	14,283	14,964	15,524
Herbicides	4,011	3,192	3,257	4,098	4,154	4,646
Insecticides	3,719	3,562	6,75	9,797	12,73	7,049
Rodenticides	376	769	417	779	750	632
Total	14,713	15,696	22,008	28,956	32,600	27,850

Source: Zviad Bobokashvili

The top 5 of fertilizer and crop protection distributors in Georgia are in Table 12. In the past the majority of outlets were in East Georgia (Kakheti, Shida Kartli and Qvemo Kartli), but in recent years distributors opened new shops in West Georgia, mainly due to the fact that farmers use more pesticides to overcome problems caused by the BMSB insect (stink bug).

Table 12 Main suppliers of fertilizers and crop protection (alphabetical order)		
Name & website	Activities	Contact information
Agrocom	Farmers service and training center	Tskhinvali Highway 8, Gori https://agrocom.ge/ +995 599 633 131 / 599 719 595
Agrokartli		Tskhinvali Highway 2, Gori www.agrokartli.ge info@agrokartli.com +995 599 752 056
Agrosphere (Noblex Ltd)	One of the largest suppliers of crop protection systems. Partners with many international corporations such as Irritec, Claas, KWS, Agrostulln, Rijk Zwaan	Kakheti Highway 155 Tbilisi https://agrosphere.ge info@noblex.ge +995 322 500 900
Born Sopkimia	Crop protection resources, fertilizers, machinery, irrigation systems and more. Partners with Syngenta, Manica, Safa Tarim, Koppert and Sakata	Marneuli Street, 44, Tbilisi https://www.bornagro.ge +995 579 700007 / 598 004 561 / 599 733 148
Cartlis Agrosystems	Wide range of plant protection products, fertilizers, seed and irrigation systems, advisory services. Partners for seeds with Bejo, Enza and HZPC	Kostava Street 75, Tbilisi, http://www.cartlis.ge/ info@cartlis.ge +995 322 445 541 / 445 542

Source: Zviad Bobokashvili

Integrated Pest Management (IPM) is quite well developed in Georgia. Consultants of the suppliers visit farms regularly and make use of weather stations for monitoring. Crucial information for farmers is spread by phone and online applications. Farmers are hesitant to spray too much anyway, because of high costs (personal communication Zviad Bobokashvili).

Photo impressions



Pesticide shop Agrokartli, Gori



Pesticide shop Agrosphere

Source: Zviad Bobokashvili

Irrigation systems

Within the Plant the Future program, RDA has listed 28 irrigation system providers on its website (https://rda.gov.ge/projects/read/plant_future/74:child). These are contracted for providing irrigation systems to project beneficiaries. Israel and Turkey have strong positions in this market. The main suppliers are:

Table 13 Main suppliers of irrigation systems	
Name & website	Activities
Agro Best https://www.facebook.com/www.agrobest.ge	Irrigation and crop protection systems
Green Solutions	Farm management, anti-hail and drip irrigation systems, seedlings, greenhouse construction. Partner for irrigation systems Rivulis (Israel)
GDM-company https://gdmcompany.ge/	Irrigation systems, mainly imported from Turkey.
Netafim Georgia (Bar-Lev Group) www.netafim.ge	Irrigation systems
ProAgro https://proagro.online/	Active in Georgia and Azerbaijan since 2008. One of the largest providers of irrigation, automation and plant fertilization (feeding) systems. Partners with Mazzei (USA), Senninger and more

Machineries

The main providers of agricultural machinery and equipment are in Table 14. More details can be found on (<https://www.yell.ge/companies.php?lan=eng&rub=365>).

Table 14 Main suppliers of agricultural machineries	
Name & website	Activities
Agromotors http://www.agromotors.ge/	Official representatives of John Deere
Villanus Baltic http://www.villanusbaltic.ge/	Lithuanian enterprise; offers new and used machinery from EU. Also supplies spare parts and different agricultural inputs.
GMC Motors https://eg.ge/	Official representatives of http://www.fotonlovol.com/ Provides agriculture equipment, construction machinery and more.
World Technics http://worldtechnic.ge/	Agriculture and construction machinery

Postharvest equipment and facilities

The fruit sector has been showing a lot of investments in cold storages for several years. Data of the National Statistics Office of Georgia (late 2019) mention 76 refrigeration units, of which more than 50% were located in Shida Kartli. Since the 4th quarter of 2020, the number of operating cold storages increased drastically and amounted to 168 units (BDO, 2020 and Geostat, 2020). The process is still going on.

Processing companies

The processing industry isn't large and highly professional, but there are several processing companies, sourcing fruit and vegetables from local farmers or having their own production. Some players are:

Table 15
The most important fruit and vegetables processing companies

Name & website	Description
Kula www.kula.ge	Cannery, located in Gori. The region is considered a strong agricultural sector in producing mainly fruit and vegetables
Marneuli Food Factory www.mff.ge	Located in Kvemo Kartli; processing 30,000 tonnes of raw material per season. Equipped with European machinery: Fenco, Niko, FAM, PETEK, Kronos Ag, etc.
KTW group - Nena www.nena.ge	Kakhetian Traditional Winemaking has invested in the construction of 2 new fruit processing facilities in West Georgia. Nena produces a wide range of fruit jams, compotes, nectars and sauces
Aromaproduct - Georgia's Naturale www.georgiasnatural.com	Largest, export-oriented group, actively engaged in organic farming and harvesting, gathering wild crops, processing. Juices, sauces, powders, freeze-dried fruits and more
Kareli fruits – Chikori www.karelifruits.com	Dried fruits production
TMT www.tiemti.ge	Located in Kaspi, Shida Kartli. Specialized in canned vegetables, puree, jams, juices, marmalades, dry fruits and more
DABI www.ojakhuri.ge	Canned vegetables, jams, compotes, etc.
Achinebuli	Emerging fruit processor Telavi, Kakheti. Since 2018 under the brand name ALALI, the company produces a line of all-natural, cold-pressed fruit juices
Geo-Organic www.geoorganic.ge	Located in Kakheti region; dried fruits
Gemuani www.gemuani.com	111 ha of tea, hazelnut, and kiwifruit and a processing plant for freeze-dried fruits and vegetables.
Georgian Nectar www.georgiannectar.ge	Juices
Caucasus Organic Fruits www.caucasus-organic.com	Fried fruits

4.9 Knowledge suppliers

Without exception, sector stakeholders believe that the level of knowledge and the availability of capable workers and management staff (especially agronomists) hinders the development of the sector. In this section an overview of the landscape of knowledge suppliers and agricultural research.

Educational institutions

Georgia counts 40 state colleges, 60 private vocational colleges and 15 universities. But the agriculture sector complains that there's a mismatch between these institutions and the real needs of the actors in the supply chain. Graduates miss relevant knowledge and practical skills after finishing their education. The government tries to resolve this mismatch and receives much donor support since 2013 from FAO, UNDP, EU, USAID, SDC, EBRD, ADA, GIZ, and others in the modernization of Technical Vocational Education and Training (TVET) and agricultural extension. Since 2013 some successes are visible. The positioning and the reputation of agricultural colleges and the Agricultural University in Tbilisi go upwards. Nevertheless, there's

much room for improvement. The Georgian Farmers Association is one of the implementers of such donor programs and is not optimistic about the performance of public institutions. They believe in TVET with strong involvement of the private sector, or even purely private. A recent initiative in the dairy sector works well and now the focus is on a private TVET in the horticulture sector (personal communication Tamuna Toria, GFA).

Agricultural extension: ICC

Institutionalized extension services are relatively new in Georgia. Information and Consultation Centres (ICCs) were established in 2013. The 59 ICCs all over the country, with approximately 260 staff, are the regional representation of the Ministry (MEPA). In 2019 ICC became a legal entity under the Rural Development Agency (RDA). The main tasks and activities of the ICCs cover:

- informing farmers about modern agricultural crop technologies, harvest & postharvest technologies and market opportunities;
- informing farmers about government policies & programmes and about legal and tax liabilities;
- collecting information and statistical data from farmers related to agricultural production, local context and current constraints.

Agricultural research: Scientific Research Center of Agriculture (SRCA)

Current agricultural research in Georgia has a short history. The Scientific Research Center of Agriculture (SRCA) <http://srca.gov.ge/en> was established in 2014 to restore research activities in the agricultural sector. The center consists of 17 departments, including vegetable crops, fruit crops, postharvest etc. SRCA's head office is in the Mtskheta region, close to Tbilisi and it has 4 branches in the country. The main location covers several greenhouses and demonstrative areas, but such facilities are missing in West Georgia where climate and soil properties differ from the Mtskheta region.

The fruit crops department is led by Zviad Bobokashvili. He mentions three key tasks of SRCA in fruit crops:

- variety evaluation and providing recommendations to farmers (no breeding);
- research and dissemination of outcomes on pruning methods;
- saving the gene pool (many varieties got lost in the Soviet time, when yield was the only criterion) and identification of genetics for commercial use.

SRCA cooperates with the Ministry's extension services ICC and mainly targets the smaller and middle-sized farmers, e.g. by means of field days with demonstration. Agricultural R&D is still developing. There are good ties with international researchers (especially in the US, Italy, Germany and the Netherlands) and with the Agricultural University in Tbilisi. But there's still a need for deeper communication and exchange with international partners and businesses, to be able to bring the best international practices to the Georgian sector (UNIDO, 2021 and personal communication Zviad Bobokashvili).

Role of the private sector in knowledge dissemination

Whereas small farmers fully depend on public extension and research, large businesses usually find their own way in the (international) arena of consultancy and suppliers. More and more technical suppliers (such as Cartlis and Noblex) add knowledge services in their portfolio and more and more private agricultural consultancy agencies appear in the market. Some of them are in Table 16.

Table 16 Some of the private consultancy companies	
Name & website	Description
Agritouch www.agritouch.ge	Various agro-consulting services to international and local partners, such as farm management, training, research and analytics
Agrovision www.agrovision.ge	Full service & consulting arrangements for the cultivation of perennial crop gardens, including business planning
Agro Solutions (AS Group) www.agrosolutions.ge	Full service arrangements, including products delivery

4.10 Certification bodies

The demand for food safety and quality management certifications in Georgia's fruit and vegetables sector has long been deficient. But as more Georgian producers start to think about diversification of their export markets and are willing to export their products to the EU, Japan and USA, the demand for certification is growing year by year. There are no local certification bodies in Georgia that issue international GAP or GMP certifications (such as GLOBALG.A.P., HACCP, ISO, BRC, IFS etc.). All certifications are done by foreign, internationally accredited bodies, of which some have a representation in Georgia. Most of them are based in Ukraine and EU countries. One certification body, based in Georgia (Caucascert Georgia) conducts organic certifications. In Table 17 are the main players in the Georgian market.

Table 17 Consultancy, training and certification bodies in the Georgian agriculture sector	
Name & website	Description
Caucascert Georgia http://caucascert.ge/en/home	Inspection and certification of organic production methods. Accredited according to ISO-17065 by the German accreditation body DAkkS.
ISO consulting www.isoconsulting.ge	Consultancy and development of food safety and quality systems including GLOBALG.A.P. Cooperates with Lloyds Register
ISO Consulting Group www.isogroup.ge	Representatives of http://www.dea-ci.com/ . Provides consulting services related to ISO quality management systems
Management Systems www.isoms.ge	Official partner of German Certification Body TÜV SÜD Management Service GmbH
SDC Group www.sdccg.ge	Consulting, training and certification in various standards, including ISO, GLOBALG.A.P. Cooperates with Bureau Veritas.
Eqspertiza+ Products Certification Body	Accreditation scope includes tea, honey, spices, fruits and vegetables. The EU does not recognize the certificate
GDCI www.gdci.ge	Consulting services and training in ISO 9001:2015, ISO 22000:2005, FSSC 22000:2010, IFS, BRC, GLOBALG.A.P. and more. Partners with Bureau Veritas.
SGS https://www.sgs-caspian.com/en	Testing, inspection and certification; various food safety and quality management standards
Euro Cert https://eurocert.ge/	Advisory, inspection and certification; various ISO standards and HACCP

4.11 Business enabling environment / chain supporters and influencers

Ease of doing business in Georgia

Georgia scores high on the 'Ease of Doing Business' ranking of the World Bank: 7th on the overall list of 188 countries and 1st on the regional and 'upper middle income' lists <https://www.doingbusiness.org/en/rankings>. It is relatively easy to start and register a business in Georgia. However, the country ranks lower on resolving an insolvency and on cross border trading. Therefore Georgia has lower scores in other rankings: 74 out of 140 countries in the Global Competitiveness Report by the World Economic Forum and 45 out of 180 countries in the Corruption Perceptions Index by Transparency International.

One particular theme is the ongoing ban on 100% foreign investments. After the end of the Soviet regime, it happened that (foreign) investors took 4,000 to 5,000 ha of land and used it as a trading tool, which was by no means always in favour of the agricultural sector. Therefore the GoG introduced the regulation that doesn't allow foreigners to buy land. There are pros and cons; some say that it holds back the modernisation and internationalisation of Georgia's agriculture.

Policy and legal framework

During the presidency of Michael Saakashvili (until 2013) the relationship with Russia was under pressure (amongst others resulting in a Russian trade embargo). Agriculture wasn't a priority in those years. Since 2013 agriculture is higher on the agenda of the GoG. Irrigation development is one of the spearheads.

Recently MEPA developed the Agricultural and Rural Development Strategy 2021-2027, with active support of the European Neighborhood Program for Agriculture and Rural Development (ENPARD), the United Nations Food and Agriculture Organization (FAO) and the United Nations Development Program (UNDP).

The strategy has 3 main goals:

1. Increasing competitiveness in agricultural and non-agricultural sectors;
2. Sustainable use of natural resources, maintenance of ecosystems, adaptation to climate change;
3. Creating effective systems for food/animal feed safety, veterinary and plant protection.

Under these strategic goals, the specific objectives and tasks in order to achieve a competitive sector are:

- ensuring knowledge / awareness of farmers and entrepreneurs;
- ensuring development of value chains by focusing on diversification, innovation and cooperation;
- promotion of producer associations;
- ensuring increased access to financial instruments;
- increasing access to infrastructure and services;
- improving irrigation and drainage systems (BDO, 2020).

Supportive programmes under the Rural Development Agency (RDA) of MEPA

RDA (<http://www.rda.gov.ge/>) implements a variety of programmes and projects to stimulate agricultural growth, often based on cluster development principles. Important ones are Plant the Future, Preferential Agro Credit Project, Agro Production Promotion, Co-financing of Processing & Storage Enterprises and Imereti Agro Zone, the greenhouse cluster in Imereti.

- **Plant the Future**: this programme is a very popular one for the fruit sector. It includes a variety of arrangements to develop nurseries (seedlings), primary production and systems for improvement of water efficiency (such as irrigation) and protection (such as anti-hail). It's based on co-financing and technical assistance in new investments of the following crops: peaches, plums, cherries, apricots, raspberries, blackberries, persimmons, pomegranate, kiwi, figs, walnuts, almonds, hazelnuts, pistachios, apples, pears, quinces, blueberries. Co-financing focuses on the seedlings and modern drip irrigation systems. Beneficiaries may be natural persons or sole proprietors, being citizens of Georgia or enterprises or registered cooperatives, incorporated in Georgia. Plant the Future continues until 2023.
- **Preferential Agro Credit Project**: within the frame of this programme (since 2013) enterprises can receive preferential credits or leasing facilities from selected commercial banks or financial institutions for fixed and current assets; eligible activities include primary agricultural production, processing, storage.
- **Agro Production Promotion**: this programme aims to promote primary production of annual and perennial crops and focuses on greenhouse investments and irrigation systems. The facility falls under the framework of the Agriculture Modernization, Market Access and Resilience project (AMMAR), funded by the International Fund for Agricultural Development (IFAD) and the Global Environment Facility (GEF), allocating around 10 million GEL for greenhouses. The amount of co-financing amounts up to 50% (but not more than 50,000 GEL in case of enterprises and 500,000 GEL in case of cooperatives). The program was launched in 2020 and already has 22 greenhouse beneficiaries in the Imereti region.
- **Co-financing of Processing & Storage Enterprises**: this programme is operational since 2014 and targets processing and storage enterprises; they can receive co-financing of up to 40% of the total costs, up to maximum of 500,000 GEL.
- **Imereti Agro Zone (IAZ)**: an initiative to modernize the greenhouse sector by creating a greenhouse cluster (agro-park concept) in Imereti, based on an integrated chain approach. The start of implementation is expected early 2022 (see also sections 4.5 and 7.2).

Furthermore RDA runs an Agro diesel support program, a co-financing facility for harvesting machinery, the Georgian Tea Plantation Rehabilitation Program and an Agro insurance programme.

Other agencies under MEPA

- National Food Agency (NFA); operates since 2011 and has a mandate and tasks in the field of food safety and quality. NFA is responsible for issuing phytosanitary certificates required for exports and for

activities that control and enforce plant protection codes, including inspections of farmers. NFA operates several regional offices. In the Imereti office exporters can apply for Export Certificates (UNIDO, 2021).

- National Agency for Sustainable Land Management and Land Use Monitoring <http://www.land.gov.ge/>
- Agricultural Logistics & Services Company <http://www.alsc.ge/En/>
- Georgian Amelioration <https://ag.ge/Ge/Contacts>
- National Wine Agency <http://georgianwine.gov.ge/En>
- State Laboratory of Agriculture <https://sla.gov.ge/>

Georgian Chamber of Commerce and Industry (GCCI)

The GCCI is the biggest business union in the country. The Chamber collaborates with leading donors and implements projects and activities tailored to business needs. The Chamber has a strong regional representation, including the regional Chamber in Imereti. This chamber is in charge of issuing Certificates of Origin for herb exports if the export destination country has such a requirement. Additionally, the Chamber has contributed significantly to the establishment of the Georgian Herbs Producers Association in Kutaisi (UNIDO, 2021).

Enterprise Georgia

Enterprise Georgia (<http://www.enterprisegeorgia.gov.ge/en/home>) is an agency under the Ministry of Economy and Sustainable Development (MOESD). Its business division promotes entrepreneurial activity in Georgia by supporting entrepreneurs, assisting with the creation of new enterprises and the expansion and refurbishment of existing enterprises. The export division promotes the country's export potential and the invest division's primary role is to attract, promote and develop direct foreign investment in Georgia. This division mediates between foreign investors and the GoG. Interested foreign investors can knock on the door of the invest division for information (general marketplace data and statistics, including sector-specific research) and support with communication, on-site visits and aftercare.

Associations

All over the sector a number of member-based associations serve the individual interests of their members. Some have a generic scope (crops and animal husbandry), others are dedicated to one single crop. The most relevant ones are in Table 18:

Table 18 Associations	
Name	Description
Organic Farming Association Elkana https://www.elkana.org.ge/	Established in 1994. More than 700 members, including farmer groups, associations, cooperatives, enterprises
Georgian Farmers Association GFA https://gfa.org.ge/en/	Founded in 2012 as a non-commercial, non-for-profit organisation, currently uniting about 4,000 farmers across Georgia. GFA is a facilitator between the GoG and farmers and connects farmers with markets
Georgian Seeds and Saplings Association GEOSA https://eu4georgia.ge/georgian-seeds-and-saplings-association-geosa/	Established in 2021 with the mission to boost the production of high quality seeds and planting material and comply with the upcoming certification system, aligned to the international standards.
Georgian Fruit Growers Association	Founded in 2019, aiming to identify farmers' needs and corresponding support for the sustainable development of the Georgian horticulture sector and exports.
Georgian Berry Growers Association https://www.facebook.com/GBGAssociation/	Established in 2017, aiming to promote the berry sector and support farmers with different educational and practical training. Activities include lobbying, advisory services and market development. Around 100 members

Georgian Blueberry Producers Council https://www.facebook.com/Georgian-Blueberry-Producers-Council-101471481631235/	Established in 2020 with the mission to support the Georgian blueberry industry. The council consists of the 6 biggest blueberry producers and exporters
Georgian Herbs Producers Association	Founded in 2017 and uniting owners of greenhouses and cooperatives. Around 30 members, representing more than 200 farmers. The association actively cooperates with various donors, e.g. in supporting producers on GLOBALG.A.P. certification and its requirements (UNIDO, 2021)
Almond and Walnut Producers Association https://www.facebook.com/AWPAGorgia/	Founded in May 2018 with the goal to support the industry, knowledge exchange and the adoption of best practices. Around 200 members
Association of Nuts producers https://qhqa.ge/	Established in 2013 and uniting about 25,000 hazelnut growing farmers from all over Georgia. The main goal is to increase the knowledge related to hazelnut care and to improve the production and quality of hazelnuts

Financial institutions

According to data provided by National Bank of Georgia there are 15 banks on the Georgian market, of which 11 provide support, programmes and/or loans in the agriculture sector (Table 19). Commercial loans for investments in agribusiness aren't attractive. On the other side, most of these banks play an active role in the current developments in agriculture because they are included in the aforementioned Agro Credit project, implemented by (RDA, under MEPA.

Table 19 Commercial banks with agricultural programmes	
Name - website	
TBC Bank - https://www.tbcbank.ge/web/ka	Procredit Bank - https://www.procreditbank.ge/
Georgian Bank - https://bankofgeorgia.ge/	Halyk Bank - https://halykbank.ge/ka/individuals
Liberty Bank - https://www.libertybank.ge/ka/?lang=geo	Pasha Bank - https://www.pashabank.ge/
Basis Bank - https://bb.ge/en	Finca Bank - https://www.finca.ge/en/
VTB Bank - https://vtb.ge/ge/individuals	Credo Bank - https://credobank.ge/en/
Kartu Bank - https://www.cartubank.ge/	

Cargo transport infrastructure

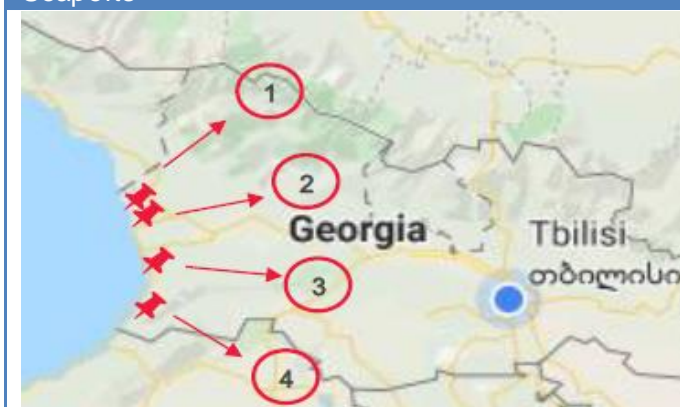
Georgia's infrastructure for export via air, water and land (road and rail) isn't highly competitive. For air cargo there're no facilities in the Kutaisi airport, which is the closest air-hub to the main production regions in West and Central Georgia. From the main international airport in Tbilisi there're not many cargo flights.

Georgia has 4 sea ports on the Black Sea coast

- Kulevi Oil Terminal (#1 in Figure 8);
- Poti - Georgia's first port. In 2019 (January-November) the volume of cargo was 7.9 million tonnes (#2);
- Supsa Terminal - in 2019 the volume of incoming cargo was 3.5 million tonnes (#3);
- Batumi - like the port of Poti, it transports both solid and liquid cargoes. Currently, the port has 5 terminals. In 2019 (11 months) the volume of cargo to the port reached 2.9 million tonnes (#4).

Shipments of fruit and vegetables are mostly carried out from the port of Poti, where any company has the right to ship cargo from abroad to Georgia, or vice versa. Transit times (number of days) from the Poti port to some destination countries and ports in Europe (e.g. 22 days to Rotterdam) are shown in Figure 9.

Figure 8
Seaports



Source: BDO (2020)

Figure 9
Transit times by sea from Poti port to EU cities

N	Receiving country	Receiving port	Transit Time (day)
1	Germany	Hamburg/Bremerhaven	22
2	United Kingdom	Felixstowe	23
3	France	Le Havre	22
4	France	Fos-sur-Mer	18
5	Netherlands	Rotterdam	22
6	Sweden	Gothenburg	26
7	Finland	Helsinki	27
8	Norway	Bergen	26
9	Bulgaria	Varna or Burgasi	7
10	Romania	Constanța	7

Source: BDO (2020)

Several important infrastructural projects are underway:

- Anaklia Deep Sea Port Construction;
- New Baku-Tbilisi-Kars Railway Main Line Construction;
- Expansion of Kutaisi International Airport;
- Automated Air Traffic Control (ATC) System (BDO, 2020).

4.12 Postharvest, distribution, trade and market access

Since long Russia has been the main export market for various agricultural and horticultural products. Due to the nature of trade with Russia, Georgian actors never felt the need, nor were they encouraged to invest in postharvest technology and in compliance with high-end market standards such as GLOBALG.A.P. As a consequence the majority of Georgian producers is not aware of requirements and business practices in high-end markets such as the EU, where GLOBALG.A.P is a must. Only few, especially the ones with high-tech greenhouses (products such as herbs, greens, tomatoes, cucumbers, sweet peppers) or with modern fruit plantations (berries, stone fruit) are aware and are prepared.

Generally speaking Georgian exporters are happy with the ease of shipping to Russia and the ease of quickly receiving money. However, also the Russian market step by step asks for higher quality and urges exporters to invest in the cold chain. Moreover, trade with Russia comes with political challenges and uncertainties. A recent incident (early July 2021) illustrates that vulnerable situation. Close to the end of the blueberry harvest season in Georgia the sector panicked as a result of rumours that the Russian market may be closed for Georgian blueberries, following new Russian regulations. Georgia's National Food Agency (NFA) quickly announced that export could continue, but the fact as such that Russia can suddenly block the imports, isn't off the agenda. As a matter of fact, prices for farmers dropped right away. More details are in a publication of Business Media Georgia (Annex 5).

Other markets in Central Asia, East and Central Europa have opportunities in certain windows, e.g. Armenia and Azerbaijan for blueberries. But it goes without saying that for (perishable) horticulture products that are produced on a large scale in order to reach competitive advantage, alternative markets (Middle East, EU or even USA and Far East) are indispensable. In order to realize access in such markets, the sector stakeholders should invest more in production management and CSR protocols (certifications), postharvest practices, an unbroken cold chain and export infrastructure (for air, water and land).

5 Other donor programmes

Several donor organizations are operating in Georgia's agricultural sector. Some relevant, recent ones are:

The EU4Business - EBRD Credit Line offers loans and leasing finance and cash-back incentives, meant to support SMEs and entrepreneurs in aligning their businesses with EU Directives, helping them reach out to new market opportunities by investing in upgrades of their production processes and services.

The EU funded the €6 million program Innovative Action for Private Sector Competitiveness in Georgia, implemented by four UN agencies: UNDP, FAO, United Nations Industrial Development Organization (UNIDO) and International Organization for Migration (IOM). The program addresses the role of clusters and networks of small and medium enterprises; among others, this project is affiliated with the IAZ greenhouse cluster project in Imereti.

FAO and EBRD, with support of the EU conducted a value chain assessment and technological audit on culinary herbs and organized an international conference Herbs of Georgia in Kutaisi in order to highlight investment opportunities in the culinary herbs sector.

FAO is supporting the alignment of food safety measures with EU legislation, animal health protection, surveillance, monitoring and traceability system, and approximation of phytosanitary legislation and standards to international and EU standards. In this multi-year program, FAO has provided technical assistance to support the sustainable development of seed production by promoting a seed certification system in Georgia.

The USAID Agriculture Project, implemented by CNFA, being one of many in a row, focuses on promoting selected value chains, including herbs, perishable vegetables and berries. The program has two directions: grants and technical assistance for all actors of the value chains (farmers, collectors, processors, exporters). The grant component offers co-financing opportunities, while the technical assistance component offers training and other ways of capacity building and education. Part of this technical component is supporting farmers to comply with food safety standards and certificates, including GLOBALG.A.P. This includes farmers training as well as co-financing of up to 50% of the adaptation costs (consultations, restructuring, certification process). In order to make it more feasible for smaller producers to reach the GLOBALG.A.P level, the project also pays attention to the development of GeoGAP as an intermediate step towards the final GLOBALG.A.P. goal.

Another direction of the USAID Agriculture Project is increasing the capacity of associations; the project is planning to provide technical support to the Georgian Herbs Producers Association in Imereti in the nearest future. Additionally, the project is also planning to create demonstrative plants for herbs growing in Imereti, as well as in Guria and Adjara, to increase the quality of practical educational programs.

Organizations mentioned above (USAID, FAO, EBRD) are also closely coordinating and cooperating with Imereti Agro Zone, and some of them have already provided support to this cluster development initiative. Therefore, once the IAZ project implementation starts, more support is expected to come from these parties (UNIDO 2021).

6 Obstacles and risks in the Georgian horticulture sector

The Georgian horticulture sector faces a long list of obstacles and risks all along the supply chain, from planting and cultivation to product distribution and delivery. The main weaknesses (obstacles) and threats (risks) are summarized in this section under four themes: 1st pre-and postharvest practices; 2nd market and market access; 3rd business enabling environment and 4th CSR.

Pre- and postharvest practices

In the crop cultivation and the postharvest stage the main obstacles and risks are:

- Small scale of production (no economies of scale, which multiplies the impact of high input costs);
- Lack of the right knowledge, equipment and technology for competitive productivity & quality and for better adaptation to climate change, in particular with respect to:
 - quality seeds and seedlings;
 - crop protection against pests, diseases, weeds;
 - adequate water management;
 - mechanisation;
- High costs of inputs, electricity and energy, partly due to high dependence on imports;
- Not enough (skilled) farm management and labour force;
- Weak postharvest technology and practices (storage, handling); broken cold chain;
- Little consolidation of produce before distribution to the market;
- Weak willingness and capacity to cooperate;
- Weak overall organisation and coordination in the supply chain;
- Insufficient working capital and weak willingness and options to invest.

Market & market access

With respect to distribution in Georgia and performance in export markets, the main obstacles and risks are:

- Absence of a large domestic market (both for fresh retail and processing) and absence of a strong export market; weak access to reliable sales channels;
- High dependence on the insecure and vulnerable Russian market for exports;
- Weak market intelligence and market awareness, limited knowledge about Market Access Requirements in high-end markets, such as Europe;
- Only few producers have the right certifications to access high-end markets, e.g. GLOBALG.A.P and social compliance; overall little experience and weak capacity to enter and sustain in high-end (export) markets.

Business enabling environment

With respect to political, regulatory and infrastructural conditions, the key obstacles and risks are:

- Limited support 'on the ground' for SMEs by the government;
- Weak (though developing) knowledge infrastructure with respect to:
 - vocational and higher education;
 - applied research;
 - agricultural extension;
- No competitive infrastructure for distribution; weak export shipping lines compared with competing countries (e.g. no cargo facilities in the Kutaisi airport and only few cargo flights from Tbilisi airport).

Corporate Social Responsibility (CSR)

CSR refers to the responsibility for the impact of decisions and activities on society and the environment, through transparent and ethical behaviour that contributes to sustainable development, including (human, animal and plant) health, environment and the welfare of society. The CSR Risk Checker of MVO Nederland <https://www.mvorisicochecker.nl/en> shows a risk inventory, meant for SMEs that directly or indirectly do

business abroad. It provides insights into the potential social and environmental risks any SME may face through international business activities.

For SMEs active in the Georgian fruit and vegetables sector, the Risk Checker shows a total of 21 potential risks, of which one (1) in the field of Fair Business Practices, four (4) in the field of Human Rights and Ethics, eleven (11) in the field of Labour Rights and five (5) in the field of Environment. Some of these are the following:

Human Rights and Ethics

- Unsafe situations, freedom of movement and separation of families in Abkhazia and South Ossetia

Labour Rights

- Weak labour conditions for seasonal workers
- Child labour
- Widespread discrimination, based on age, sex and union affiliation
- Sexual harassment of women on the work place
- Health and safety; agriculture is one of the three sectors in Georgia with serious dangers for accidents and occupational diseases, mainly because of exposure to hazardous parasites and chemicals

Environment

- Deforestation and pressure on biodiversity, due to monocultures and agrochemical use.

7 Opportunities in the Georgian horticulture sector

This section indicates to which extent and in which subsectors the Dutch horticulture sector can cooperate with Georgia. These business opportunities are based on the intrinsic potential and ambition of the Georgian horticulture sector to modernize and grow and they are based on the aforementioned weaknesses (obstacles) and threats (risks).

Various Dutch investors, suppliers of seeds, (flower)bulbs, cut flowers, ornamental plants, seedlings, other inputs, knowledge services as well as traders / importers already found their way in Georgia. On the other hand, Georgia already built strong business relationships with partners in other (competing) countries. Against that background the 4 most promising opportunities for the Dutch horticulture sector to start or increase business are in:

- the fruit and nuts sector (propagation included);
- the greenhouse sector, in particular the Imereti Agro Zone project;
- climate smart agriculture / water management knowledge and technology for open field crops;
- the education and training sector.

In below sections these 4 cases are elaborated, each with a clear context and needs of Georgian farmers and businesses. Furthermore, there are specific opportunities to contribute to sustainable and responsible business practices (CSR) in the Georgian horticulture sector; these options are mentioned as well.

Besides these 4 fields, Georgia also offers opportunities in other fields, such as the vegetables subsector and the cut flower and ornamental plant subsector. However, these are less evident and less clear yet.

7.1 Fruit and nuts sector (propagation included)

Among all subsectors, the fruit and nuts sector shows the highest growth potential and currently attracts most attention from investors from inside and outside the industry. Blueberries are high on the agenda nowadays, but all other berry types, pome fruit, stone fruit, table grapes, subtropical fruits and even nuts have business potential. Although tough international competition (e.g. Israel, Turkey, Italy etc.) is a fact, there are opportunities for Dutch cooperation and Dutch solutions in various directions:

Starting materials and cultivation	Postharvest and trade
<ul style="list-style-type: none"> ▪ Young plants <ul style="list-style-type: none"> ▪ especially apples, pears, berries ▪ virus-free materials ▪ options for partnerships with Georgian nurseries or input suppliers ▪ Fertilizers and agrochemicals ▪ Growing systems with substrate and fertigation technologies ▪ Substrates ▪ Soilless cultivation, hydroponic systems and smart irrigation in orchards ▪ Mechanisation (new and second hand); machinery and equipment, such as: <ul style="list-style-type: none"> ▪ sprayers ▪ weed controllers (mechanical, thermal) ▪ harvesters ▪ Consultancy and coaching <ul style="list-style-type: none"> ▪ agronomical / crop management / IPM ▪ managerial / farm management and business development 	<ul style="list-style-type: none"> ▪ Postharvest technologies <ul style="list-style-type: none"> ▪ pre-cooling ▪ cold storage ▪ sorting and grading ▪ Processing technology ▪ Marketing and sales <ul style="list-style-type: none"> ▪ import for distribution in Europe ▪ focus berries, nuts, herbs ▪ Consultancy and coaching <ul style="list-style-type: none"> ▪ postharvest practices and logistics ▪ market intelligence and market access ▪ sales and export development

A typical modern apples and plums orchard in the central regions of Georgia



- 40 ha orchard with apples and plums for the domestic market
- the region gives 500-600 mm rain per year; the orchard is under full irrigation, based on bore holes, using driplines and sprinklers
- apples are covered with nets for hail and sunburn protection, yielding 50 to 65 tonnes per ha from the 5th year after planting
- plums yield 25-30 tonnes per ha

There're around 25 farms in Georgia with this level, with either 800 trees/ha or high-density systems with 2,600 trees/ha. They cover more than 600 ha in total. As business owners see positive perspectives in the local market and the region, they are interested in expansion and/or modernization of the orchard and postharvest infrastructure.



With (ULO) cold storage, sales to the domestic market is possible after March, which highly contributes to the overall profitability. The average cold storage capacity of pome fruit farms goes up to 500 tonnes, but the largest farms have (ULO) facilities up to 1,500 tonnes.

Common -indicative- investments per ha for a high-density apple orchard (2,600 trees/ha)

- land preparation and initial crop care US\$ 2,750
- trees (import) US\$ 15,000
- trellis system US\$ 6,500
- irrigation US\$ 2,750
- total US\$ 27,000

Based on current input and market price levels, business owners count on break even after 4 years.

Dutch business opportunities

- the entire range of inputs, from young plants to high quality fertilizers, agrochemicals, mechanization
- technical solutions for smart irrigation and climate resilient practices
- supply of postharvest technology (cooling, storage, sorting and grading)
- knowledge transfer and consultancy services towards high productivity and climate smart and more sustainable cultivation practices

A typical modern nut orchard investment



Hazelnuts, walnuts and even more almonds and pistachios have high interest amongst farmers and investors, driven by positive (export) market perspectives. The indicative **investment in walnuts** is around US\$ 6,000 per ha: land preparation US\$ 1,500; drip irrigation US\$ 3,000 and trees 240 x US\$ 6 = US\$ 1,500. Break even can be reached within a few years.



Dutch business opportunities

- the entire range of inputs, from high quality fertilizers, agrochemicals, mechanization to technical solutions for smart irrigation and climate resilient practices
- import and trade
- knowledge transfer and consultancy services towards high productivity and climate smart and more sustainable cultivation practices

New blueberry investments in West Georgia

There're more than 1,000 ha blueberries in West Georgia and the area is increasing. Around 30 producers have 10 ha and more and six producers can be considered as large: Agrolane, FCO, Blue Valley, Blueberry, Blueberry Farm and Green Valley.

There's serious interest for expansions and new investments, up to projects of 80 ha each.

Indicative investment per ha blueberries

- land preparation US\$ 1,500
- planting materials US\$ 15,000 - 25,000
- Irrigation & fertigation system: US\$ 4,000
- wind shelter US\$ 3,000
- net (anti-bird, anti-rain, anti-insect) > US\$ 50,000

Existing projects are investing in (cold) storage and packhouse facilities or come to arrangements with external providers who offer such postharvest facilities and services.

Based on current input and market price levels, business owners count on break even after 2 to 4 years.

While sales and distribution in the past years were focused on the region, especially Russia, businesses are preparing themselves for European markets, based on transport by reefer trucks. Harvest and delivery windows are in June and July.

Dutch business opportunities

- the entire range of inputs and equipment, from young plants to high quality fertilizers, agrochemicals, mechanization
- technical solutions for smart irrigation and climate resilient practices
- supply of postharvest technology (cooling, storage, sorting and grading)
- knowledge transfer and consultancy services towards high productivity and climate smart and more sustainable cultivation practices
- import and trade: buying produce for distribution in the EU and/or domestic and regional markets
- co-investing and partnerships, e.g. vertical integration of EU distributors or horizontal integration of EU producers / groups



Due to the fact that this sector has a number of interrelated growth options and challenges, a Dutch consortium of technical and knowledge suppliers in the fruit sector, with complementary products and services, would have much potential to realize long-term cooperation. Such an initiative could build further on existing networks and previous projects in this field (e.g. by Delphy) and could opt for support of RVO's Partners for International Business (PIB) facility.

7.2 Greenhouse sector

Imereti Agro Zone (IAZ www.iaz.ge) is in the middle of an ambitious process to create a Greenhouse Cluster in Imereti with a one-window service principle and an integrated chain approach. IAZ unites investors, farmers, service providers, distributors, exporters, R&D and education on a total area of 220 ha in 2 plots: 158 ha in Tskaltubo and 62 ha in Baghdati, 30 km distance from each other and in the proximity to the Kutaisi International Airport. The Government of Georgia will contribute by providing and developing all necessary infrastructure.

The 220 ha agro-park project consists of 4 pillars:

- a nursery;
- vegetables & cut flower production greenhouses (roughly 15 ha high-tech, 20 mid-tech, 65 low-tech);
- a logistics centre for consolidation, storage and handling, connected with Kutaisi airport;
- a Horticultural Training & Demo Centre (HTDC) for training staff, chain actors and students.

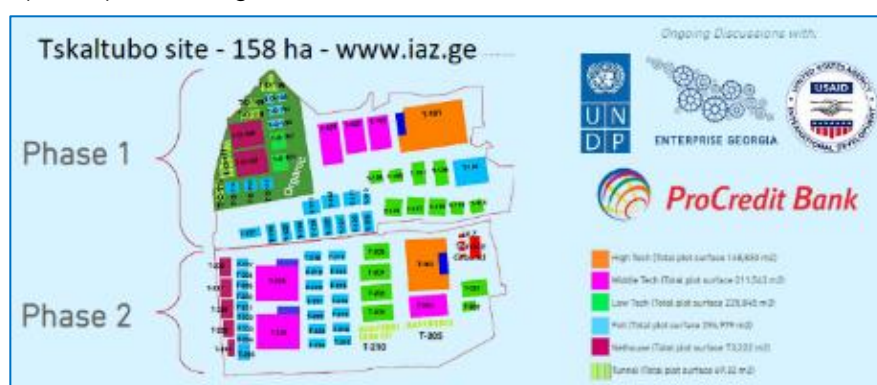
The goal of IAZ is to create a park where the majority of the producers cultivate homogenous products with the same quality standards and with access to other certified players of the value chain (e.g., packing facilities, exporters, distributors). IAZ aims to supply high-value export markets.

IAZ works with a consortium of the Georgian company GeoHolding <https://www.llcgeoholding.org/> and the Dutch company KSH (K. Spiertz Holding <http://www.kspiertz.com/>) for technical support and design of the cluster and its infrastructure. IAZ also receives support from international donors, such as USAID, FAO, UNIDO and strives to get additional support from the Asian Development Bank (ADB), and the European Bank for Reconstruction and Development (EBRD) and others.

An Expressions of Interest round in March 2021 resulted in 60 reactions: 32 from Georgia and 18 from international applicants, of which 5 from the Netherlands. In October 2021 a Request for Proposal call will be issued with a deadline on December 31, 2021. Start of land and infrastructure preparation is scheduled for March 2022. Although the actual start and progress of the IAZ project will depend on interest of local and foreign investors and shareholders, and although exports markets for the horticultural products of the dozens foreseen greenhouses are not yet ensured, this project is a serious opportunity for Dutch suppliers, whether or not in one or more clusters.

Dutch business opportunities

- turnkey greenhouse development
- the entire range of inputs and equipment, from seeds, young plants to growing systems, substrates, fertilizers, biological control, climate control, automation, screens etc.
- supply of postharvest technology (cooling, storage, sorting and grading)
- knowledge transfer and consultancy services
- co-investing and partnerships, e.g. vertical integration of EU distributors or horizontal integration of EU producers / groups in greenhouse vegetables or cut flowers



7.3 Climate Smart Agriculture / Water Management

In Georgia's open field crop production (fruit orchards, vegetables, potatoes and other arable crops) there's an awareness and a need to introduce more smart technologies and modern water management practices. Dutch businesses and knowledge suppliers have a lot to offer in realising yield optimization, climate resilience and tackling the impact of extreme weather events. In various other countries on the African, Asian and American continent they have proven to come with feasible solutions.

Dutch business opportunities

- modern on-farm irrigation (surface and subsurface) and drainage
- improved soil management and land improvement methods
- data management systems and remote sensor technology at farm level, based on internet applications (artificial intelligence, meteo stations, drones)
- accessible water, soil and crop (lab) diagnosis and analysis technology
- water quality, water reuse and water harvesting methods
- climate resilient (integrated and circular) farming systems
- frost-protection technology



7.4 Education and training

The lack of experienced and capable human resources, especially agronomists, is often heard, all over the sector. Graduates from universities and vocational schools lack adequate practical skills. This mismatch has been addressed in various attempts and projects of the government since 2013, supported by international donors. Especially USAID, the EU and GIZ are spending huge budgets. Reform of Technical Vocational Education and Training (TVET) has a priority and the key challenge to achieve a closure of the gap between education and the sector needs, is more involvement of the private sector in education. In that field the Dutch educational sector can contribute a lot, based on a strong history and experience in the Netherlands itself and in international cooperation.

Because of little faith in the functioning of public institutions in bridging the education - labour market gap, recently a project has been initiated to establish a purely private vocational school in the Georgian dairy sector. All involved stakeholders call it a success. The Georgian Farmers Association (GFA) is one of the drivers and now is taking initial steps to do the same in the horticulture sector. GFA has the right local

network, they have a location in mind, a large private stakeholder on board with the capacity to invest and they are very open for cooperation with Dutch educational institutions. Joint educational programmes, international student and staff exchange and strong involvement of the Georgian and Dutch private sector is their dot on the horizon.

Several Dutch consulting organisations / knowledge providers are active in Georgia (Delphy, Q-Point, Agriterra) and could be involved. But also other organisations, such as HAS University, Aeres University, Wellant College, SUSP and more, can be potential partners in this field.

Knowledge and skills needs

- IPM
- Smart technologies (CSA, water management)
- Modern orchard management
- Organic production methods
- Protected cultivation / greenhouse climate
- Postharvest practices
- Meeting market access requirements / GAP and CSR certifications
- International sales / export
- Financial management

Priorities

- Practical field training and demonstration
- Modernisation of TVET (bridging education - labour market gaps)
- Internationalization in education and training
- Developing online content for digital platforms (e.g. Agroskills)

Dutch business opportunities

- commercial consultancy services
- involvement of Dutch educational institutions in business consortia (e.g. a PIB program in the fruit sector)
- student and staff exchange (with or without donor support)



7.5 CSR opportunities

The horticulture sector in Georgia is faced with pressure and negative impact on sustainability in terms of (human, animal and plant) health, environment and the welfare of society. The Risk Checker of MVO Nederland shows a total of 21 potential risks for SMEs that directly or indirectly do business in Georgia. These risks include Human Rights and Ethics (in particular unsafe situations in Abkhazia and South Ossetia; freedom of movement and separation of families), Labour Rights (e.g. weak labour conditions for seasonal workers, child labour, age and sex discrimination, sexual harassment of women, health and safety issues) and Environment (deforestation and pressure on biodiversity, due to monocultures and agrochemical use).

One of the reasons for the existing practices is the fact that there's little or no pressure for change from Georgia's main markets. Retailers and consumers in Europe and other high-end markets increasingly ask for

proof of sustainable operations by means of certification schemes, such as GLOBALG.A.P. and additional social and/or environmental standards. Sustainable business practices are a license to sell in such markets. But Georgia's main markets (domestic channels, Russia and other regional markets) do not have these access requirements.

Cooperation with the Dutch horticulture sector in any of the aforementioned fields (in sections 7.1 to 7.4) may create new insights and needs for change, notably for improving social and environmental aspects of the business. Dutch organisations with a stake in Georgia may promote and even necessitate more responsible and inclusive business practices, especially when it goes together with compliance to high-end (retail) market requirements.

Apart from the fact that Dutch horticulture is a world leader in high-tech solutions, having the capacity to contribute to reducing and reusing water and other resources in Georgia's horticulture, there's potential for impact in another direction, notably women participation in the labour market. Traditionally, women participation in Georgia is low and there's a significant gender pay gap. For the last ten years, this gender gap did not decline. The number of men starting a business in Georgia (65%) is almost twice the number of women (35%) and the share of female business owners is low (UN Women, 2020). At the same time, there's an increasing number of female entrepreneurs and initiators / leaders of associations in the Georgian horticulture industry. There's a generation of young women with a good antenna, capacity and networks for business opportunities in high-value products and high-end markets, such as production, processing and/or export of berries and nuts. Working with these entrepreneurs may indirectly contribute in a positive way to the role and position of women in Georgia's agricultural sector.

7.6 RVO (co-)financing options

Some of the aforementioned opportunities are based on evident business cases with clear profitability perspectives. Other opportunities are less evident and may require additional support, e.g. for tackling obstacles in the enabling environment or in the field of training and education. RVO offers various instruments for Dutch SMEs. Individual businesses, business consortia and Private Public Partnerships (PPPs) can apply to instruments such as:

- Partners for International Business (PIB);
- Dutch Good Growth Fund (DGGF);
- DHI scheme (Demonstration projects, Feasibility studies, Investment preparation projects).

Annex 1 References

A1.1 Reports

- BDO (2020), Market Research of Agricultural Products for Joint Venture GeoHolding & KSH Consortium, May 2020
- ENPARD (2015a), Greenhouse production of herbs - Agricultural Value Chain in Imereti and Racha regions, Czech University of Life Sciences Prague, 2015
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- UNIDO (2021b), Greenhouse Cluster Diagnostic Study in Imereti Region, May 2021
- UN Women (2020), Country Gender Equality Profile of Georgia, 2020

A1.2 Websites

- CSR Risk Check of MVO Nederland <https://www.mvorisicochecker.nl/en>
- EU4Climate <https://eu4climate.eu/georgia/>
- FAO <http://www.fao.org/georgia/fao-in-georgia/georgia-at-a-glance/en/>
- Georgia & EU https://eeas.europa.eu/headquarters/headquarters-homepage_en/49070/Georgia%20and%20the%20EU
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- Statista <https://www.statista.com/statistics/441463/gross-domestic-product-gdp-per-capita-in-georgia/>
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- World Bank <https://www.worldbank.org/en/country/georgia/overview>
- World Bank <https://www.doingbusiness.org/en/rankings>

Annex 2 Production statistics of permanent fruit crops 2012-2020

Production of permanent fruit crops in Georgia (grapes not included) in 1,000 tonnes									
	2012	2013	2014	2015	2016	2017	2018	2019	2020*
Pome fruit	62.2	87.9	97.4	37.9	77.1	25.8	93.3	52.7	101.9
Of which:									
Apple	45.0	68.6	82.3	25.7	65.2	19.7	82.7	44.3	88.8
Pear	16.1	17.0	14.2	11.6	10.7	5.6	9.4	6.8	11.4
Quince	0.9	2.1	0.8	0.5	1.2	0.5	1.0	1.4	1.6
Stone fruit	38.2	49.5	53.3	42.8	57.2	47.1	54.2	38.5	63.2
Of which:									
Plum, prune and damson	10.7	8.7	13.1	4.5	8.5	3.8	9.5	4.2	11.2
Cherries	5.1	5.6	5.4	2.5	3.7	2.1	4.4	3.0	5.3
Apricots	0.7	0.7	1.0	0.7	1.5	0.6	0.9	1.2	1.9
Peach, nectarine	7.1	23.7	24.9	23.1	33.3	32.3	27.5	22.3	30.5
of which nectarine	-	-	-	-	5.9	6.1	7.5	3.7	4.1
Sour plum, cherry plum	13.7	10.3	8.4	10.9	9.5	7.8	10.9	7.1	12.9
Nuts	30.1	51.0	38.1	41.1	33.4	24.9	23.1	30.9	40.9
Of which:									
Walnut	4.8	10.8	4.2	5.6	3.6	3.3	5.7	6.6	7.5
Hazelnut	24.7	39.7	33.8	35.3	29.5	21.4	17.0	24.0	32.8
Subtropical fruit	26.2	27.8	20.1	21.4	15.8	13.0	16.0	20.3	22.3
Of which:									
Persimmon	-	-	-	-	10.0	8.9	10.0	14.3	15.4
Fig	-	-	-	-	1.5	1.1	1.4	1.5	1.9
Feijoa	-	-	-	-	1.4	0.8	1.3	1.5	1.7
Kiwi	-	-	-	-	1.0	1.0	1.3	1.5	1.5
Pomegranate	-	-	-	-	0.9	0.6	0.7	0.7	1.0
Loquat	-	-	-	-	0.8	0.4	0.7	0.5	0.3
Mulberry	-	-	-	-	0.1	0.1	0.3	0.2	0.4
Berries	1.2	0.7	1.1	1.1	3.0	3.2	1.8	2.0	2.7
Of which:									
Strawberry	-	-	-	-	2.6	2.7	1.2	1.0	1.2
Raspberry	-	-	-	-	0.2	0.3	0.4	0.6	0.5
Citrus	77.0	110.4	69.8	77.6	65.5	58.2	66.3	64.0	57.1
Of which:									
Tangerine	71.1	107.1	65.9	71.0	60.0	54.9	62.3	59.8	53.4
Orange	3.5	1.4	1.7	3.5	2.5	1.8	1.6	2.0	2.2
Lemon	2.4	1.9	2.2	3.0	3.0	1.4	2.4	2.2	1.5
TOTAL	235	327	280	222	252	172	255	208	288

Source: Zviad Bobokashvili

Annex 3 Modern blueberry cultivation and postharvest impressions



Annex 4 Nurseries in Georgia

Nursery name	X ^{*)}	Location	Products
Fruit / berries			
Complex Agro		Kareli, Bebnisi	Pome and stone fruits
Vazha Ruadze		Guriani, Chumlaki	Peaches and nectarines
Akhali Baghi Ltd,		Gori, Garejvari	Pome and stone fruits
Kitsnisi / Akaki Iosebidge	X	Gori, Kitsnisi	Almonds, apples, cherries, pears, peaches, plums, strawberries
Fruit Growers Association / Elguja Chonisvili	X	Gori	Almonds, apples, pears, quinces, peaches, apricots, cherries, plums, walnuts
Davit Kakashvili / Vano Kakashvili	X	Gori, Skra	Almonds, apples, pears, quinces, peaches, apricots, cherries, plums, raspberries, blackberries, currants, walnuts
Edvard Sabashvil	X	Gori	Raspberries, blackberries, currants, strawberries
RK Gea / Nikoloz Tatishvili	X	Gori, Uplistsikhe	Raspberries, blackberries, blueberries
Georgian Agrarian Union Ltd		Guriani, Velistsikhe	Raspberries, blackberries, blueberries
RK Berries of Daba-Tsaghveri		Borjomi, Tsaghveri	Strawberries, raspberries
Agro-Agora		Zugdedi, Rukhi	Blueberries
Cooperative Jogo		Senaki, Nosiri Kareli, Kvenatkoca	Raspberries, blueberries
New Garden Ltd. / Tariel Robanishvili	X	Gori	Apples, cherries, pears, peaches, plums, raspberries, blackberries, walnuts, table grapes
Grapes			
Bakurtsikhe Lt.d		Guriani, Bakurtsikhe	
RK Bitani		Akhmeta	
Chateau Chailuri		Gagarejo, Didi Chali	
Geo-Nergi Ltd.		Mtskheta, Mukhrani	
Mikheil Batilashvili	X	Kvemo Chala	Table grapes
Nuts			
Agri Georgia Ltd		Zugdedi, Chitatskari St. Nino	Hazelnuts
RK Nikozi		Gori, Zemo Nikozi	Walnuts, almonds
Pademi Ltd.		Mtskheta, Force	Walnuts, almonds
Oleg Bukia	X	Senaki, Menil	Hazelnuts
Taribana 2016		Dedoplistskaro, Gamarjveba -Taribana	Pistachios
Vinicchio Valleys Ltd.		Sagarejo	Pistachios
Vegetables			
El Seedling / Zaza Kerelashvili & Givi Kerelashvili	X	Lagodekhi	Basil, parsley, coriander, tomato, cucumber, eggplant, pepper, watermelon, melon
Luri Kakhadze	X	Marneuli	Basil, parsley, coriander, arugula, spinach, cucumber, cabbage, tomato, eggplant, lettuce, watermelon, melon

Source: Zviad Bobokashvili and Delphy ^{*)}

*) The nurseries marked with X in the second column participated in a 2020/2021 training, provided by Delphy, in cooperation with Cartlis.

Annex 5 Blueberry exports - Business Media Georgia July 2, 2021

<https://bm.ge/en/article/unexpected-development-of-blueberry-season-in-georgia/86354>

UNEXPECTED DEVELOPMENT OF BLUEBERRY SEASON IN GEORGIA



← Back

Blueberry harvest continues in Georgia, with almost two weeks left until the end of the 2021 season. The season started a week later this year, in the first days of June despite this fact producers had positive expectations at the beginning. How has changed their expectations now, when almost half of the harvest is sold and new regulations on plant products imports came into force in Russia starting from June 29?

This week blueberry producers and exporters panicked after they heard that the Russian market may be closed for Georgian blueberries as Russia is the main export market for Georgian blueberries. Following this, National Food Agency of Georgia (NFA) has published an announcement regarding this subject. According to the announcement, plant produce export to Russia continues without any difficulties. At the same time, NFA confirms that Russia has tightened regulations on imported plant produce, including fresh fruits and vegetables, and if necessary Rossekhznadzor is entitled to request additional documentation on pesticide use or conduct a laboratory test.

The official announcement does not seem convincing for producers as they have not experienced yet how new regulation works in practice. The last batches of blueberry arrived in Russia before the new regulation and the new ones have not crossed the border yet. The uncertainty has already affected the local market. Large producers who were buying blueberries from smaller farmers either stopped buying or offering lower prices. Although, producers note that prices were getting lower anyway because the Russian market is supplied by Serbian blueberry now and the quality of Georgian blueberry is getting lower as the season comes to an end.

FCO is among the largest producers of blueberry in Georgia with 36 hectares of bearing blueberry plantation in the Guria region. Company representative Rati Morchiladze told EastFruit that from the beginning of the season until 28 June the company was buying blueberry from other growers, as it has the full post-harvesting chain and can handle the colling, sorting, and packaging process. Starting from current week the company stopped buying blueberry because of the uncertainty regarding the new regulations on the Russian market.

"As we know the new regulation gives Russian side the right to request additional documentation on pesticide use and test the product in the laboratory, if necessary. As we do not control what kind of pesticides are used by other producers it is risky for us to buy and sell their product on the Russian market."

According to Morchiladze company has already sold 20 tons of blueberry for exports and plans to send another batch of 30 tons at the end of this week. 11 tons out of 30 will be sent to Germany for the first time.

Morchiladze states that potential problems on the Russian market will not affect their business in the future as the company has a Global G.A.P. certificate and plans to increase exports to European markets. Overall Morchiladze evaluates the current season positively as company reached new markets this year. Blueberry season will last for another two weeks in Guria.

Another large blueberry producer is Green Valley (Mtsvane Mdolo in Georgian) with 15 hectares in Imereti region. Company has already harvested and exported over 25 tons of blueberry to Russia which is more than 2/3 of the harvest this year as this is their second year of getting a harvest.

Company representative Zura Tsereteli tells EastFruit that situation on Russian market is uncertain for them too, but as company sells only its own blueberry and season ends in 10 days, they are less concerned. For Green Valley current season is good, despite recent developments as at the beginning export price was quite high and remained at the relatively high level for long period. Tsereteli thinks that high prices at the beginning was connected to the late harvesting this year and that Imereti region started selling first. Another positive development for the company this year was to receive Global G.A.P. certificate.