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HORTICULTURAL BIOMARKET
ACTORS, CHALLENGES, & OPPORTUNITIES

This publication was made possible through support provided by the U.S. Agency for International Development, under the terms of Contract No. 72011418C00001. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.

The publication was prepared by the Biological Farming Association Elkana in the frame of the Technical Assistance Program implemented by the USAID Agriculture frameworks

CONTENTS

ACRONYMS

LLC	Limited Liability Company
AA	Association Agreement
ADA	Austrian Development Agency
AFT	Anka Fair Trade LLC
APMA	Agriculture Projects Management Agency
BMSB	Brown marmorated stink bug
DANIDA	Denmark's Development Cooperation Agency
DAP (Dakks)	National Accreditation Body for Germany
DCFTA	EU's Deep and Comprehensive Free Trade Area
EC	European Commission
EU	European Union
GiZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
GL32	Guidelines for the Production, Processing, Labeling and Marketing of Organically Produced Food
GMO	Genetically modified organism
GRETA	Project Green Economy: Sustainable Mountain Tourism & Organic Agriculture
HEKS-EPER	A major Swiss NGO with focus on rural community development humanitarian aid and inter-church cooperation
IFOAM	International Federation of Organic Agriculture Movement
ISET	International School of Economics at Tbilisi State University
JAS	Japanese Agricultural Standard
MEPA	Ministry of Environmental Protection and Agriculture
NOP	National Organic Program
PIN	People in Need, a Czech NGO
USAID / REAP	USAID/Restoring Efficiency to Agriculture Production Project
SDC	Swiss Agency for Development and Cooperation
SIDA	Swedish International Development Cooperation Agency
SRCA	Scientific Research Center of Agriculture
TF	Taso Foundation
ToR	Terms of Reference
TRACES	Trade Control and Expert System
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USDA	United States Department of Agriculture

DEFINITIONS

Biofarming is a system of agricultural activity, encompassing such methods of farm planning, management and production that favors preservation of a natural balance and biodiversity.1 It should be mentioned that the terms "bio," "eco" and "organic" are identical. All the three denote products from biofarming and therefore are used as synonyms (e.g., biofarm = ecofarm = organic farm, bioproduct = ecoproduct). Georgian legislation makes use of the terms "bioproduct" and "bioproduction."

Bioproduction is a unified farming/production management system established under international standards and Georgian legislation. Under these rules, it employs methods that ensure the preservation of biodiversity, ecological and biological balance, environmental protection, and conservation of natural resources. At the same time, it conforms to specified requirements for production, processing, storage, packaging, labeling/marking, distribution and marketing.

Bioproduct is a food and/or animal feed product, including yeast used in food/feed production. It is also a vegetative reproduction and seeding material produced, processed, packaged, stored, handled, labeled/marked and marketed in line with the above mentioned requirements of bioproduction.

Biomethod describes the processes employed to preserve and maintain the natural and organic integrity of farms and agricultural ecosystems. It also describes the manner in which the organic integrity and useful properties of renewable resources are preserved during processing and manufacturing of a bioproduct without the use of genetically modified organisms (GMO), GMO-derived products, or synthetic materials, and complies with internationally accepted bioproduction rules and standards.

Bioproduction certificate is a document provided by a certification body verifying that a food, animal feed, product and/or biomethod adheres to specific bioproduction rules and standards.

Certification body is an internationally accredited organization, or an organization accredited by the LEPL National Body on Accreditation - Accreditation Center - GAC, responsible for verifying that the food, animal feed, product and/or biomethod conforms to the established requirements.

Conversion is a period of transition from a conventional farm to a biofarm, during which the biomethods are used.

Primary production describes a wide range of agricultural pursuits that includes plant growing, harvesting, fruit gathering, animal raising, breeding, milking, and collection of wild plants.

Processing is a methodology that significantly alters an initial bio-product that can be described as slaughter, cutting, heating, smoking, canning, ripening, drying, salting, extraction, freezing, or any combination of these processes as well as packaging and labeling/marking.

Bioproduction is based on general and specific principles. General principles are broad statements such as "The use of the ecosystem's internal natural resources (living organisms) as well as biological and mechanical methods of manufacturing (bioproduction planning and management)." Specific principles tend to be focused and narrowly defined. Two such examples are "Implementation of measures that preserve soil fertility and vitality, fight for soil fertility enhancement, soil compaction and erosion control" and "Delimitation of bio- and in-conversion production sites on the same farm."

Regulation of the Government of Georgia on Bioproduction, #198, July 30, 2013:
http://gov.ge/files/276_37826_866935_198300713.pdf

EXECUTIVE SUMMARY

This document is the result of a systemic study of plant bioproduction in Georgia. It was commissioned by the USAID Agricultural Program CNFA and conducted by the Biological Farming Association Elkana.

CURRENT BIOMARKET STATUS, TRENDS AND EXPORT POTENTIAL

The biomarket in Georgia is still in its infancy. When studying bioproduction, nearly half of the commercial operators surveyed are either expecting their first harvest this year or are about to begin production or processing of plant products using biomethods. While these efforts are developing at a rapid pace, it should be noted that some farmers will begin biofarming, quit, and subsequently return to the practice at a later date - making it difficult to draw accurate conclusions about their operations.

At present, there are 27 biocertificate holders in Georgia, while 69 applicants are undergoing conversion. Out of these 96 operators, 14 are production oriented, 73 are engaged in both production and processing, and 6 are engaged in processing. The 3 remaining operators are manufacturers of production inputs. There are no shopping facilities or trading companies certified (or undergoing conversion).

When looking at fruit and vegetable sub-sectors, (not including grape growing and winemaking), only six operators are biocertified while 12 others are under conversion.

All of the biocertified products from Georgia are exported to foreign markets. The two primary factors driving this dynamic are:|

•Biocertificates are sought by bioproducers to enable exports.

•A local market for bioproducts does not yet exist.

Recognizing that the German market for bioproducts is one of the largest in Europe, and Germany is one of the largest exporters in the region, it is not surprising that the majority of Georgian bioproducts are exported to Germany.

Generally, the world market for bioproducts has been making significant gains since its establishment. In 1999, sales volume reached USD 15.2 million whereas, in 2017, volume reached USD 97 billion.

Although certified Georgian bioproducts are not available in local markets, there is a well established network of supermarkets making a variety of imported bioproducts available. This being said, it is practically impossible to find biocertified fruits and vegetables in local retail outlets.

In spite of these dynamics, the study has identified a number of businesses that are not certified but embrace biomethods in their respective production practices. The overall variety and total volume of these products, coupled with those that are properly certified, are noteworthy.

In terms of production, larger volumes are attributed to non-timber forest products, tea and vegetables (including potato). While non-timber forest products are fully exported, tea and vegetables are sold primarily in Georgia. The smallest production volumes are attributed to fruit (including berries) and cereals with the majority sold in local markets.

From a financial perspective, the cumulative annual increase in income for bioproduction hovers at 20%, confirming positive growth potential. The most significant increases are associated with vegetables, dried fruit and fruit juices.

Acknowledging these undeniably favorable dynamics, coupled with the possibility of external support, the potential for growth in terms of certification and bioproduction is significant.

Surveys conducted by Elkana during fairs and exhibitions found a growing concern among consumers for healthier living. When ranking bioproducts, those in greatest demand were identified as fruit, vegetables, fruit juices, new varieties of tea, berries, and potatoes.

The study also compared the potential for bioproduction in Georgia against trends and dynamics in international markets, analyzed input from farmers and industry experts, identified the most promising export bioproducts, and found that the most promising foreign markets for exports were EU member states.

ENVIRONMENT

While the first attempts to draft legislation for bioproduction in Georgia were made in 2002, decisive action did not take place until 2014. Based on relevant EU legislation and international bioproduction standards (IFOAM, GL32), the Government of Georgia adopted regulations for bioproduction.

The government organization taking the lead on issues related to bioproduction is the Ministry of Environment

Protection and Agriculture of Georgia. With its LEPL Scientific Research Center of Agriculture, this body is directly involved with bioproduction and actively cooperates with non-government, private sector, and international organizations.

At this time, the Ministry has focused its efforts linked to bioproduction on the Strategy for Agricultural Development of Georgia 2015-2020 - wherein bioproduction is mentioned as part of an environmental and biodiversity strategic direction.

As part of the Green Economic Policy introduced by the country's Prime Minister, Georgia has launched a USD 0.5 million, five-year program that will enhance the production and certification of organic products. This program, part of the United Agroproject, includes both co-financing and tax remissions for primary producers and processors, assistance with certification processes, and technical training. Bioproduction is also supported through other government sponsored programs but on equal terms with "non-bio" production.

It is vital to understand that tremendous importance is attached to bioproduct certification in developed biomarkets. At this time, the only certification body in Georgia is Caucascert LLC. While their certificates are recognized by the EU, they have no standing in US markets.

EDUCATION AND RESEARCH

At this writing, there are no universities in Georgia with a specialized program in bioproduction. While general research and/or academic activity in this field may be carried out, it is performed as part of a specific project or combined with other subjects in a single curriculum.

CHALLENGES, ADVANTAGES, AND RECOMMENDATIONS

This study identified a number of factors that continue to influence the development of bioproduction and a bioproduct market in Georgia. The primary challenges are:

•There are a limited number and variety of certified bioproducts

•The certification process is expensive and takes 3 years to complete

•A shortage of qualified experts and farmers with practical bioproduction experience

•Limited resources within Georgia to maintain and protect bioproduction

•A lack of information about domestic and export markets for bioproducts

THE PRIMARY ADVANTAGES THAT WERE UNCOVERED INCLUDE:

•An operational legal structure for bioproduction in Georgia

•An operational certification body for bioproduction in Georgia

•Numerous state and donor programs and projects that support bioproduction

•Georgian consumers are demonstrating a clear preference and ability to afford better quality agricultural products

•Rapidly growing demand, and limited competition among producers, for bioproducts in local markets

•Growing demand for bioproducts in international markets, especially in EU countries

•A wide range of modern production inputs are available in Georgia

Having evaluated all of these factors, including viable prospects and international perspectives, the study team has developed the following recommendations:

•Expand the scope and number of programs available to entrepreneurs that are linked to bioproduction. In particular, these efforts should:

-facilitate the formation of complete bioproduct value chains
-help to alleviate the financial burden of pilot programs, biocertification, insurance, and conversion risks

•Establish an effective bioconsultation system that engages international experts and improves the capacity of local specialists

•Assist with the diversification of bioinputs through testing and registration

•Conduct in-depth research into consumer demand, trends, and preferences related to both domestic and international bioproduct markets - formulating additional recommendations based on these findings

Study Methodology

The purpose of this study was to generate an overview of Georgian plant bioproduction and register as many of the principal actors in the sector. It was conducted over a period of two months, starting the first week of February 2019. Field research was conducted over the first month. Preparation of the report was completed over the second.

In order to obtain the most comprehensive and informative results, the study team approached relevant experts, practitioners, and policymakers and obtained informative responses to a prepared questionnaire. The study also sought out, recorded and evaluated all available secondary information that was deemed germane.

To register principal actors within the growing and dynamic bioproduction sector, Elkana relied on its own network of beneficiary farmers as well as whatever formal data was available from Caucascert - currently the only bioproduction certifying body in Georgia.

In total, this study contains input from 164 individuals representing 38 companies, 24 cooperatives, and 102 farmers - all actively producing, processing or trading plant-based products and their derivatives using bio-production methods. Their involvement in bioproduction can be described as:

- 143 are primary producers (98 farmers, 22 companies, and 20 agricultural cooperatives)

- 16 are processors (9 companies, 4 agricultural cooperatives, and 3 farmers)

- 5 are sellers/resellers (4 companies, and 1 farmer)

A comprehensive listing and individual profiles of these producers, processors, and traders appear in Annex 1, 2, 3, and 4). The study also includes government, international and non-government organizations that participate or influence bioproduction (see Annex 5).

It is estimated that 30-40 farms and several companies engaged in commercial agricultural activities using biomethods were not available for, or declined to take part in the survey.

About half of the individuals surveyed have indicated they are going to start production using biomethods or expects their first commercial bioharvest this year.

Of the surveyed farmers, due in part to rapidly developing industry dynamics, it was difficult to make clear distinctions between those embracing traditional farming practices with others who were actively utilizing or

interested in bioproduction. In some cases, farmers would start biofarming, then quit, and later return. This issues creating these fluctuations are highlighted in this study.

Field research was based on the responses obtained from questionnaires tailored to each of four categories of bioproduction organizations: producers, processors, retailers/wholesalers, and bioproduction advocate groups. From this effort, a database of respondents and one-page profiles for each organization was created.

It is important to note that, based on the scope of work outlined in the Terms of Reference (ToR), this study was limited to fruits (except hazelnut and grapes), grains, vegetables, potatoes, corn, berries, herbs, forest (non-timber) plants and the products derived from these plants.

In most cases, respondents embracing biomethods rely strictly on biological/organic fertilizers and plant protection inputs and adhere to allowable doses and preparations as mandated by biological standards. For some of the respondents, there are situations when they apply chemicals that have short-term and/or no measurable side effects and only in doses that fall short of maximum restrictions.

The study consists of qualitative and quantitative components. The qualitative component examines local and international markets, national regulatory legislation, and the challenges associated with these first two issues. The quantitative component identifies the principal actors in Georgia's bioindustry as well as the cumulative effect and scope of their activities. In addition, all of the participants were given the opportunity to highlight the challenges and opportunities they believed were having a significant impact upon bioproduction in Georgia.

I. Plant Bioproduct Market In Georgia

I.A. HISTORY OF BIOPRODUCTION IN GEORGIA

Georgia is a country with a rich agrarian heritage, renown for its agricultural traditions and diversity of cultivated flora. With its varied mountainous environments and shortage of arable land, Georgian agriculture is prevented from competing with large, industrialized farms that dominate world markets with cheap analogs. This being said, Georgian agriculture is well suited to the production of high quality bioproducts that would be competitive and satisfy growing demand in international markets.

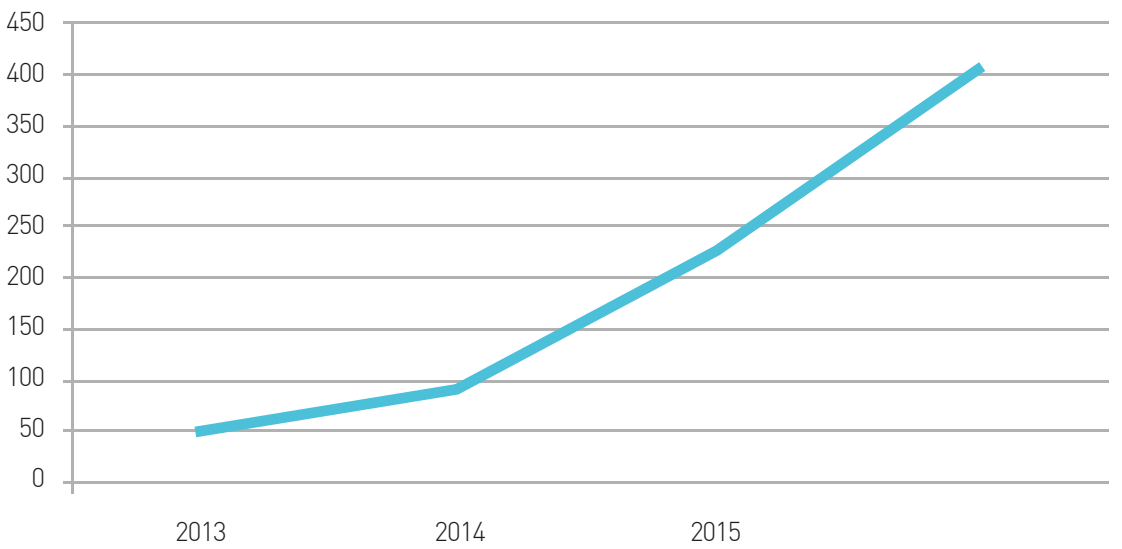
Bioproduction in Georgia started in the 1990s with the founding of the farmer-based Biological Farming Association Elkana. With long–term aid from the German organization Bread for the World,[2] and the groundwork performed by Elkana promoting biofarming, the establishment of biofarms in Georgia was made possible. Additional funding and support for bioproduction was subsequently funded by Oxfam Novib, Avalon, Cordaid, HEKS EPER, and ADA.

There were two significant outcomes from Elkana's proactive work with bioproduction, both taking place in 2006, that facilitated the first exports of Georgian-made bioproducts. The first was the adoption of the Law of Georgia on Biological Agriproduction. The second was the creation of Caucascert, the first commercial certification body in Georgia.[3]

Noteworthy progress has been made over the last few years including the implementation of a bioproduction regulatory framework (2013) and the introduction of strict biolabeling requirements (2014). With these parameters in place, Georgian bioproducts were able to align with international standards, compete more effectively, and increase overall sales to international markets (see Diagram #1).

With the introduction of a new, Georgia-based program supporting organic production, along with the launch of GRETA (Green Economy: Sustainable Mountain Tourism & Organic Agriculture) that supports bioproduction in western Georgia, will facilitate significant advances in bioproduction.

Diagram 1. Export of organic products from Georgia by year [4]



2 In the 1990s, the first projects were financed by two funds from the German protestant church: Diakonisches Werk and EZE/EED. These funds were later united into a single organization - Bread for the World - that continues to Elkana.

3 This was made possible by the Development of Organic Agriculture and Certification System in the South Caucasus project. It was supported by SDC, HEKS-EPER and GiZ and included Georgia-based Elkana.

4 Source: Caucascert.

I.B. BIOPRODUCTION-ENCOURAGING ENVIRONMENT

Although biofarmers first appeared in Europe just after World War I, regulated bioproduction standards were not drafted until the 1970s. As the market for bioproducts expanded, the need for regulations that ensured consistency and quality increased. In 1991, the EU adopted the The first legislation that regulated bioproduction in the European Union (Council Regulation #2092/91) was adopted in 1991 and was enforced in 1993. Additional legislation and adoption of national standards were subsequently introduced by many other countries.

As of 2018, there were 182 countries that had engaged in bioproduction. Of these, 94 had special legislation regulating the industry, while 16 were still in the process of implementing such legislation.[5] In spite of these legal frameworks, IFOAM Basic [6] Standards for Organic Production and Processing, and the GL32 adopted by Codex Alimentarius,[7] are considered the regulatory cornerstones for biproduction.

There are a few privately developed standards for bioproduction (i.e. Demeter Biodynamic Production Standard) that maintain guidelines that are considerably more restrictive than those legislated by the EU.

A bioproduct certification system is crucial to the establishment, reliability and credibility of biomarkets - starting with a comprehensive set of guidelines for compliance and inspections leading up to formal certification. The use of formal regulations enforced by the State, as well as individual standards that constitute voluntary compliance, ensures conformity. It influences every aspect of production through to the delivery of finished products and provides a framework of understanding between producers and consumers.

Recognizing that standards set out by certification processes can be applied more consistently across all aspects of biproduction, there is an effort underway to substitute these conventions in place of legislative regulations.

The International Federation of Organic Agriculture Movements (IFOAM) is the worldwide umbrella organization for bioproduction representing 700 active member organizations from 100 countries. In 1980, it formulated the Basic Standards for Organic Production followed by an assessment of certifying organizations, ensuring compliance with IFOAM Accreditation Requirements. Recognizing that IFOAM norms and accreditation requirements do not have the force of law, certification of bioproducts typically occurs in line with specific needs and market pressures.

The following are accepted as key world regulations and requirements:

•EC 834/2007, EC 889/2008 - European Organic Regulations

• National Organic Program (NOP) – a USA regulatory program for bioproduction

•Japanese Agricultural Organic Standard (JAS)

The most important regulations and standards for bioproduct exports are:

•IFOAM Standard

•Council Regulation #834/2007 on organic production and labeling of organic products[8]

•Commission Regulation # 889/2008 setting detailed rules for implementation of the Regulation #834/2007 on organic production and labeling of organic products with regard to organic products, labeling and control

•Commission Regulation #1235/2008 setting detailed rules for implementation of Council

•Regulation #834/2007 regarding arrangements for imports of organic products from third countries

•BIO-Suisse Standard[9]

•USA State Standard – USDA National Organic Program (NOP)[10]

• Japanese Agricultural Organic Standard (JAS) (JAS)[11]

•National Standard of the People's Republic of China - GB/T 19630-2011[12]

It should be mentioned that, in 2018, the EU adopted new regulations for organic production (2018/848)[13] that will be enacted in 2021. The adoption of detailed bylaws that will introduce these regulations is planned for 2019 and 2020.

All of the basic standards and regulations that apply to bioproduction are based on the same principles. Any differences that may arise are typically technical in nature and associated with unique business systems, climate, social values and market regulations.

One such example allows for the application of tetracycline and streptomycin in US-based apple and pear orchards, a practice that is prohibited in the EU. Similarly, while the EU allows treatment of animals with antibiotics, it is prohibited by US regulations. Additionally, while EU and US regulations provide for parallel proceedings, allowing for the production of different products on the same farm under organic and conventional farming systems, Switzerland requires the farm to be completely organic.

Chinese and Japanese standards are also characterized by similar peculiarities, but are considered even stricter in some aspects. Generally speaking, the Chinese biostandard is considered one of the strictest in the world.

It is also important to note that different standards may have different periods for conversion to bioproduction.

Generally, regulation of bioproduction includes the following principal topics:

•Technical - production standards and transitions (periods for conversion)

• Labeling

• Control - conformity assessment (certification, accreditation), registration, and accountability

•Imports

•Legislation

Every major market has strict regulation that influence how bioproducts are imported. For example, the EU, US and Japan allow imports of bioproducts only when these products are certified by a body accredited by "a competent authority." This requires "conformity" or "equivalence" of the certification bodies which can occur:
1. Under a bilateral agreement that stipulates mutual recognition of bioproduction certification systems between exporting and importing countries
2. By direct recognition of the exporter's certification body by the importing country

There are a number of examples of mutual recognition. In China, certification can only be acquired from a certification body accredited by the Certification and Accreditation Administration of the People's Republic of China. This being said China and Ukraine have signed the Agreement of Mutual Recognition of Organic Products Certification.[14]

The US has mutual recognition agreements with EU, Japan, Korea, and Switzerland. It also recognizes accreditation systems of India, New Zealand and Israel with the understanding that the certification bodies accredited in these countries must exercise certification according to NOP standards.

The EU has mutual recognition agreements with 13 countries: Argentina, Australia, Canada, Chile, Costa Rica, India, Israel, Japan, New Zealand, Korea, Switzerland, Tunis, and the US.

For operators in countries wishing to export bioproducts to the EU or the US without mutual recognition agreements in place, their bioproducts can be certified by certification bodies recognized by the EU or US.

At present, there are no certification bodies operating in Georgia that have been recognized by the US. For the purpose of imports, the EU has authorized 10 certification bodies operating in Georgia (see Appendix 6 - EU-Accredited Certification Bodies Authorized in Georgia). Only one of these - Caucascert LLC - is Georgian.

Caucascert LLC was founded in 2005 based on the Green Caucasus biostandard, certification and quality management system. Accredited by the German Deutsche Akkreditierungsstelle GmbH (DakkS) since January 2008, Caucascert LLC has the right to register its clients in the EU's Trade Control and Expert System (TRACES) and prepare electronic certificates of inspection for imports of organic products.

Historically, the first attempts to draft bioproduction legislation in Georgia were made in 2002. In 2006, the Law of Georgia on Biological Agriproduction was adopted (enacted in 2007) and in 2007, the National Standard of Georgia - Basic Requirements of Bioproduction and Production Rules SST 86:2007 and the Order by the Minister of Agriculture of Georgia on the List of Substances Permitted in Bioproduction came into force. Unfortunately, the article for labeling of bioproducts was not enacted, resulting in an annulment of the law in 2010 and the need for legislative reform in the food sector.

The Code on Food/Feed Safety, Veterinary and Plant Protection adopted by the Georgian Parliament in 2012 re-introduced the concept of bioproduction in Georgian legislature. It stated "Bioproduction is a unified farming/production management system established under international standards and Georgian legislation, using methods that ensure preservation of biodiversity, ecological and biological balance, environmental protection, conservation of natural resources and conform to requirements specified by these rules for production, processing, storage, packaging, labeling/marking, distribution and marketing stages, and such compliance is confirmed by a certificate of conformity." Article 18, paragraph 3 of the same law states that it shall be inadmissible to add any combination of terms "biological," "ecological," "eco," "bio," "organic" to a food/feed product label or an accompanying document if the product does not comply with the bioproduction rules established by the Government of Georgia and this compliance is not confirmed by a relevant certificate. This rule entered into force on August 1, 2014.

In 2013, the Government of Georgia also adopted the Regulation on Bioproduction which entered into force on January 1, 2014. This regulation is based on EU legislation and specifies rules for bioproduction.

Georgian bioproduction, in terms of regulation, is now pursuing the following agenda:

• Recognition of the Georgian accreditation system by the US and EU generally, not limited to bioproduction

• Achievement of mutual recognition of bioproduction certification systems with the US and EU, similar to agreements that exist within the DCFTA framework

• Revision of the Government of Georgia's Regulation on Bioproduction in a manner that aligns with adjusted EU regulations

• Introduction of flexible transition rules for products manufactured for local markets (i.e. the origin of feed)

to streamline development of bioproduction.

The organization tasked to address issues linked to bioproduction is the Ministry of Environment Protection and Agriculture of Georgia (MEPA). As such, the Ministry cooperates with NGOs, private sector, and international organizations,[15] advocates for advances in relevant legislation and policies, and is responsible for implementation once new legislation is approved by Parliament or Government.

The majority of activities associated with bioproduction that have been addressed by the Ministry are primarily based on the 2013 Government of Georgia's Regulation on Bioproduction #198 and the Strategy of Agricultural Development of Georgia 2015-2020.[16] Bioproduction in the Strategy is mentioned within the framework of the Strategic Direction 3.7: Climate change, Environment and Biodiversity are mentioned in measure 3.7.1.[17]

The government has initiated a comprehensive, USD 0.5 mln, five-year program aimed at promoting production and certification of organic products as part of the Green Economy initiative introduced by the Prime Minister of Georgia. It provides co-financing and tax allowances for producers and/or processors, as well as assistance in certification and technical training. Expected to be implemented by the MEPA-based NNLE Agriculture Projects Management Agency, this new initiative will become part of the new agriculture program.[18]

Without a designated budget, this program does not include support for the upgrade of local bioproduction in a manner that aligns with European standards. Additionally, a program that supported the rehabilitation of tea plantations, including conversion to bioproduction, was suspended in 2018.

Working under the direction of the Ministry with an agenda that includes the development of ecologically safe bio-agro (organic) production that aligns with international standards, LEPL Scientific Research Center of Agriculture (SRCA) is supporting a variety of bioproduction initiatives. This is achieved through its Organic Farming Division established in 2014.

Since 2016, and in spite of limited resources, the Division is conducting research and regular trainings associated with bioproduction for employees of the Farmer Information and Consultation Centers operating throughout the country. Some of the topics being introduced includes Efficacy of Biopreparations on Annual and Perennial Plants, Local Carp Breeding and Making a Pond Bio-model, and the Use of Allelopathic and Pesticide Plants in Organic Agriculture.

It is important to note that state-funded programs, initiatives, and activities that promote agricultural production do not specifically focus on bioproduction. Within the framework of the Produce in Georgia program, a biojuice producer and exporter was funded along with other "non-bio" enterprises.[19] Promotional support from the United Agroproject (implemented by the Agriculture Projects Management Agency - APMA with support from the US government) is also anticipated.[20]

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5 https://www.organic-world.net/yearbook/yearbook-2017.html
6 https://www.ifoam.bio/sites/default/files/ifoam_norms_july_2014_t.pdf
7 http://www.fao.org/input/download/standards/360/cxg_032e.pdf
8 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R0834&from=EN
9 https://www.bio-suisse.ch/en/downloads.php
0 https://www.ams.usda.gov/rules-regulations/organic
1 http://www.maff.go.jp/e/policies/standard/jas/specific/criteria_o.html
2 http://www.biocertinternational.com/uploads/GB19630-2011-4.pdf
3 https://www.ifoam-eu.org/en/organic-regulations/list-eu-organic-regulations
4 https://www.slideshare.net/Adrienna/china-organic-certification-2014
https://www.slideshare.net/EchoCao1/organic-certification-comparative-analysis-of-china-eu-and-us- regulations?next_slideshow=1
5 http://apma.ge/news/view/159
16 http://www.moa.gov.ge/Download/Files/226
17 "A State program for developing bioproduction will be adopted and with associated measures for certification at both primary and processing levels," p. 35, Measure 3.7.1, Strategic Direction 3.7, Strategy of Agricultural Development in Georgia 2015-2020.
18 Mentioned in the report by the Minister of Agriculture: https://kalo.ge/news/view?id=5410
19 https://bit.ly/2UaeNZV
20 http://apma.ge/news/view/220

I.C. EDUCATION AND RESEARCH IN BIOPRODUCTION

At this writing, there are no universities in Georgia with a specialized program in bioproduction. While general research and/or academic activity in this field may be carried out, it is performed as part of a specific project or combined with other subjects in a single curriculum.

This being said, the Georgian Agrarian University introduced a new program - Ecological Agriculture and Environmental Protection - in 2006. In subsequent years, this program became increasingly involved in research aimed at developing conventional and ecological agricultural production systems.

In 2009, the 2nd International Conference on the Development of the Organic Sector in Central/East European and Central Asian Countries,[21] a joint effort between the Georgian Agrarian University, Elkana, and a few international partners, was attended by 200 participants from 22 countries.

In 2017, working with Elkana once again, the university published a manual on Organic Agriculture. With support from Volkswagen and Shota Rustaveli National Science Foundations, the university has also implemented a doctoral program on Sustainable Agriculture and Food Systems.[22]

There are other universities engaged in activities linked to bioproduction. The International School of Economics (ISET) at Tbilisi State University recently conducted research as part of the Organic Hazelnut Project[23] (see also International Organizations), addressing the needs of individual actors in the Organic Hazelnuts Production Value Chain.[24]

Research activities at the Georgian Academy of Agricultural Sciences (GAAS),[25] a series of lectures at Batumi University,[26] and a program that facilitates in-depth training abroad (Germany, Poland) for university students are also worth mentioning.

Due to limited financial resources and access to technical information, bioproduction is being addressed in theoretical and general science contexts rather than applied, systematic, and advanced scientific research. Regardless, biofarms and organic farming remain popular in the development of sustainable agriculture.

Bioproduction has been included in the 2019 State Vocational Educational Standards (with an extensive number of course modules)[27] and in the professional specialization catalog.[28] Students, who complete these courses are able to obtain a five-degree professional qualification in biofarming, plant bioproduction, or livestock biobreeding.

This being said, there are serious shortages in terms of technical capacity and availability of qualified professional lecturers and trainers. While there are a few agrarian vocational establishments working to attract interest by inviting specialists to deliver lectures on bioproduction,[29] these efforts do not take place on a regular basis.

When it comes to continuing education and professional training, Georgian practitioners and scientists regularly participate in BIOFACH,[30] an international world trade fair that takes place annually in Nuremberg.

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21 https://bit.ly/2F2HXDX
22 http://expressnews.com.ge/?id=74047
23 A lecture on organic farming was delivered at Sartichala Branch of Farmers School, 10.10.2017, https://bit.ly/2TkKZfK
24 The multi-year hazelnut market system development project - Organic hazelnut value chain creates income and decent employment in Western Georgia - involving DANIDA, HEKS-EPER, ADA, ANKA, PAKKA, ELKANA.
25 http://agruni.edu.ge/sites/default/files/u113/SAFS.docx
26 https://bit.ly/2VrpNm3
27 https://lib.bsu.edu.ge/e-books/book_305.pdf
28 https://bit.ly/2tD762F
29 https://bit.ly/2ExeYZL
30 http://ghn.ge/com/news/view/215280

I.D. BIOPRODUCTION INPUT SUPPLIERS

It is important to distinguish between producers of biofertilizers and biopesticides and those engaged in the production of bioinputs (organic inputs).

To begin, recognizing that bioproduction in Georgia is still in its infancy, the number of local companies engaged in the production of biofertilizers and biopesticides is exceptionally small. This dynamic is further limited by the need for producers to obtain registration and certification of their bioproducts (by comparison, conventional agricultural inputs only require registration).

Registration is an expensive, six-month process that consists of multiple steps. Certification takes even longer (usually 3 years) and is a more expensive step-by-step procedure. As a result, there are a limited number of costly imported biological inputs and even fewer locally produced options.

While it remains difficult to estimate the scale of biofertilizer and biopesticide use in Georgia, and there are no studies underway, there are estimates that can be made based on the number of bioproducers per bioproduct. For hazelnuts alone, the Elkana-commissioned study, carried out by ISET, found that about half of biofertilizer and biopesticide sales can be attributed to more than 600 hazelnut farmers engaged in bioproduction.[31]

Companies engaged in the sale of biopreparations and biopesticides in Georgia can be divided into several groups:

- Local producers of biohumus (vermicompost)
- Local producers of other biofertilizers and soil additives/substrates
- Local producers of biopesticides
- Importers/sellers of biofertilizers and biopesticides

Local biohumus producers

Over the last 300 years, the humus and total nitrogen content of Georgian soils (e.g. black earth) has reduced by 27% and 28% respectively.[32] There has also been an obvious preference for mineral fertilizers, diminishing the use of organic fertilizers.

Biohumus (also known as vermicompost), a product of enzymatic processing of manure and other organic waste by red California worms (Eisenia foetida), is a concentrated organic soil additive that contains an abundance of nutrients including vitamins, antibiotics, amino acids, and useful microflora. A highly sought after agricultural input, its popularity is due to its undeniable efficiency, results that cannot be achieved by manure alone. Comparative statistics indicate that, for tomato, cabbage, early potato and silage corn, yields are increased by 25%, 27%, 22% and 30% respectively.

Production of biohumus in Georgia over the last few decades has been limited to small scale initiatives and privately maintained activities,[33] and has yet to reach any significant levels of production.

Based on current legislation, producers of biohumus, as with other fertilizers, must be registered. To date, the number of registered biohumus producers, whether operating as a company or individual, are few. Macro-Prime LLC,[34] operating in Shida Kartli since 2010, produces liquid concentrated biohumus. Of course, there are other producers and products available,[35] including Ecologium LLC, Bio Eco Development Center LLC, and Mev Sanayi Ve Ticaret.[36]

There are a variety of factors that influence the demand for biohumus and prospects for additional production (see Ih. Characterization of the Bioproduction Sector in Georgia). This being said, there have a variety of free and commercial training opportunities for farmers to assist with the production of biohumus. As part of the EU supported agribusiness project - Improving Formal, Non-formal and Informal Vocational Education for Agribusiness in Georgia (2015-2017),[37] 73 farmers in the Imereti region obtained training on biohumus production. Similar training was also provided by the Vocational Education and Training Center (VETC).[38]

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31 Study on Private Service Providers in Organic Hazelnut Value Chain in Georgia (2018): http://iset-pi.ge/index.php/en/agricultural-projects/completed-projects/2144-study-on-private-service-providers-in-organic-hazelnut-value-chain-in-georgia

32 The State and Prospects of Biohumus Production in Georgia. Herald of the Georgian Academy of Sciences, p. 1, # 1 (44), March, 2012: http://www.gaas.dsl.ge/pdf/macne/Ak_Macne_1-2012.pdf

33 http://www.mercycorps.ge/index.php/ongoing-projects/completed-projects/16-eu-cca/16-eu-cca-media-pg1

34 http://biogumus.ge

35 https://matsne.gov.ge/ka/document/view/3352507?publication=0

36 In 2015, this company delivered 12 tons of biohumus for farmers under the contract with Ajarian AR Government and within the government sub-program - Promoting Strawberry Production through Introduction of Greenhouse Technologies: http://adjara.gov.ge/uploads/Docs/e99-fac502f0e45ddbd58ee9e1dc9.doc

37 https://bit.ly/2TRRpmS

38 https://www.vetc.info/trainig

In spite of these trainings, there is limited awareness among farmers regarding the benefits and production opportunities associated with biohumus. Based on a EU sponsored survey conducted in Kvemo Kartli in the spring of 2018,[39] it was revealed that the majority of farmers (87%) used chemical fertilizers. It was also found that an even smaller number (24%), mostly large producers and greenhouse operators, had ever heard of biohumus.

Local producers of other biofertilizers and soil additives/substrates

When it comes to biofertilizers, there are two local companies - GeoFert LLC and BioAgro LLC that are worth mentioning:

•GeoFert LLC, opened in 2016, produces three organic mineral biofertilizers, GeoHumate, BactoFert and Zeolite, which are exported to countries including Germany, Bulgaria, Kazakhstan, etc.[40] The maximum annual output capacity of the plant is 100 thousand tons.

•BioAgro LLC - Center of Biological Protection of Plants produces Organica, a unique liquid bacterial fertilizer that is the only biocertified fertilizer in Georgia. It is an ecologically safe product available locally as well as in the EU. [41]

Both of these companies sell their products in Tbilisi and other regions throughout Georgia. As part of their promotional efforts, they visit farmers and conduct practical trainings. When products are sold, company representatives frequently accompany farmers to their fields, evaluate conditions, verify needs, and provide relevant technical support.[42]

Other soil additives and substrates including peat and perlite are produced in Tsalka Municipality (the Samtskhe-Javakheti region). While primarily a producer of building materials, Perlite LLC offers a bioperlite fertilizer[43] as well as an artificial agroperlite substrate (which is more efficient in a mixture with peat).[44] Peat is typically mined from sources in Poti and in Maltakva. Although these products are available locally, they are not used commercially as a substrate in bioproduction.

Local biopesticide producers

There are several biopesticide producers in Georgia. The following companies are engaged in the production of both plant and microbiological preparations:

•BioAgro LLC (noted earlier in the text as a biofertilizer producer), produces 3 bioinsecticides[45] and 3 buiofungicides[46]

• Plant Biological Control LLC has recently registered Geo-Nema as a formula that infects the Colorado potato beetle with Steinernema feltiae nematode [47-48]

•NanoBIO Test Laboratory LLC,[49] catering to medical, agricultural and other industries, has developed microbiological and biological agents that control plant pests.

The performance of biopesticides that are locally produced, compared with imports, is different. While local production is still in its infancy and constantly improving, there are no pesticides, regardless of country of origin, that can provide absolute control over target diseases. Damage caused by the Brown Marmorated Stink Bug (BMSB) to horticulture and hazelnut farming in West Georgia in 2017-2018 points to an acute need for improvement of local biopesticides. The need is further driven by the high cost of more effective imported biopesticides,[50] not easily afforded by local farmers. Unpredictable exchange rates for imported bioinputs adds to the demand for locally produced equivalents.

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39 The Study on Potential of Use of Organic Fertilizers (Biohumus) in Production of High Quality Agricultural Products in Kvemo Kartli region; Selection of Studies on Challenges and Prospect of Development of Small and Medium Business in Georgia; pp. 144-147: https://www.eprc.ge/admin/editor/uploads/files/DCFTA%20-for%20SMEs_web-min.pdf

40 http://eugeorgia.info/ka/latestarticle/299/unikaluri-qartuli-sasuqebi-evropis-bazarze-warmatebit-iyideba

41 http://bioagro.ge/organika

42 Study on Private Service Providers in Organic Hazelnut Value Chain in Georgia (2018): http://iset-pi.ge/index.php/en/agricultural-projects/completed-projects/2144-study-on-private-service-providers-in-organic-hazelnut-value-chain-in-georgia

43 http://perlit.ge/perlite-bioperlite

44 http://perlit.ge/georgian-perlite-agroperlite

45 http://bioagro.ge/category/produqcia/biologiuri-inseqticidebi

46 http://bioagro.ge/category/produqcia/biologiuri-fungicidebi

47 https://matsne.gov.ge/ka/document/download/3823023/0/1

48 See page 51 of the article about testing of this preparation: http://www.agruni.edu.ge/sites/default/files/u113/new_interactive_2016.compressed.pdf

49 http://nanobio.ge

50 Complex field and lab tests carried out by Elkana showed that the imported bioinsecticide AZERA (azardirachtin+pyrethrin) is noted for 100% biological efficacy (BE), while in the case of other preparations the outcome was different: comparatively effective preparations (after AZERA) was found to be Pest Out (plant extract) (BE 91.69%) and Nimbecidine (azardirachtin) (BE 70.87%), while on field it was Lepidin (Bacillus Thuringiensis var. kurstaki + Bacillus Thuringiensis var. Thuringiensis) (BE 29,56%) and Bioinsect-2 (Beauveria bassiana) (BE 22,81%) (Project: "Biological Control Methods against Testing the BMSB in Western Georgia", March-October 2019, ADA/Elkana).

Biofertilizer and biopesticide importers / distributors / sellers

There are several operators providing imported biofertilizers in Georgia. Koppert Biological Systems, a leading Dutch bioproducts company opened a branch office in 2018.[51]
When identifying local importers, Bioservice LLC imports bioinputs from Latvia, including peat-based and lake silt-based plant organic fertilizers, and sells them in Tbilisi.[52-53]

ABC Delivery operates locally with its online biopesticide and biofertilizer sales platform - sps.ge. While there are other local companies importing and/or reselling biofertilizers, they also handle conventional fertilizers, pesticides, and other agricultural inputs. A few of these companies are:

•Gori-based Agrobest LLC sells several biofertilizers and biopesticides (including one that fights the BMSB)[54]

•Cartlis Agro LLC Systems sells one biofertilizer and one bioinsecticide from its service centers,with locations throughout Georgia[55]

•Agrodistribution company Noblex LLC sells several biofertilizers through its Agrosphere retail locations in Tbilisi city and the Kakheti region

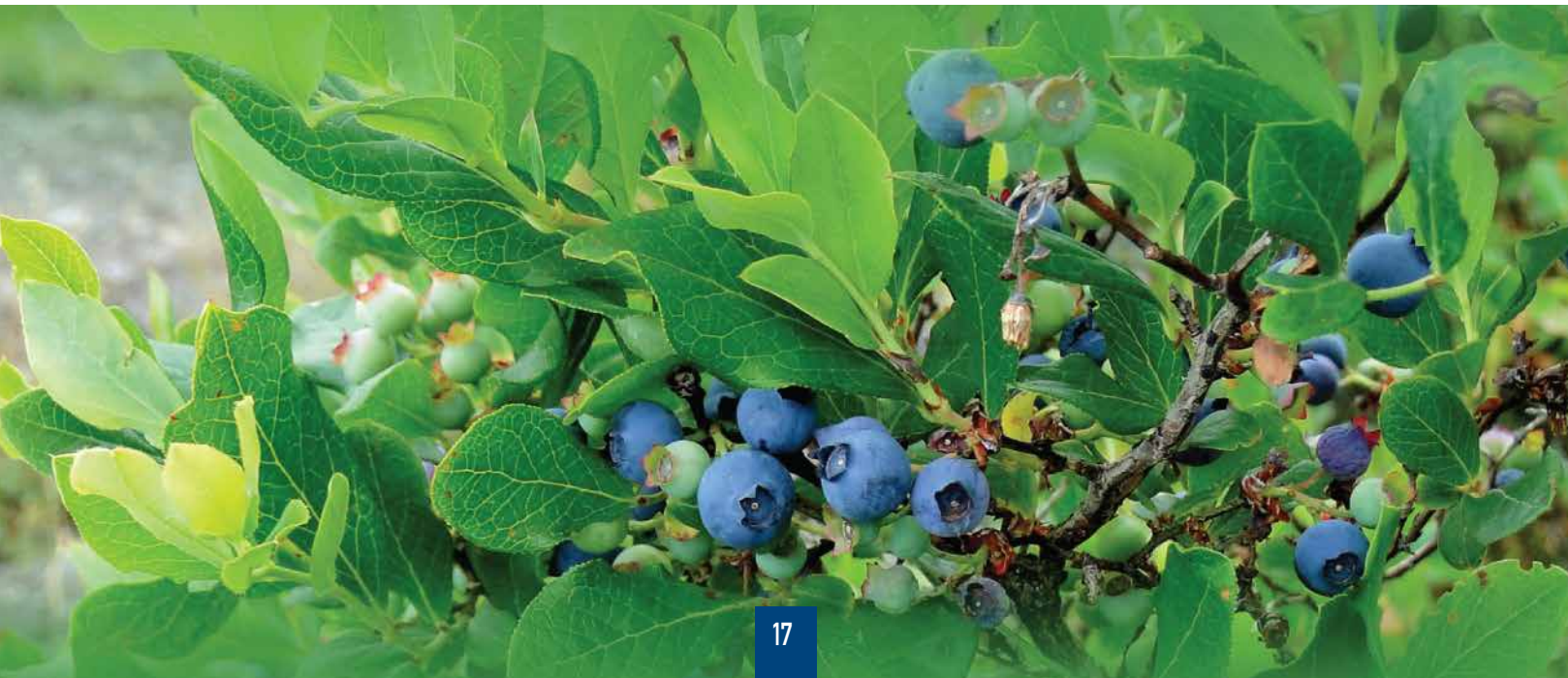
•The Tbilisi-based LLC BestService offers imported products that includes two biofertilizers, a bioacaricide, a biobactericide, and a bioimmunostimulator

•Born Agrochemistry LLC sells four brands of biopesticides and one biofertilizer through its shops in Tbilisi city, Kakheti and Kvemo Kartli regions

•Agrovita LLC, the official partner of BASF (a German chemical company) in Georgia, sells biofertilizers, buiofungicides, and bioinsecticides through its network of local shops[56]

•The Domino's network of shops sells imported expanded clay and artificial drainage (a light porous material) made from a mixture of organic additives and clay

51 http://www.agronews.ge/kompania-koperti-_-janmrtheli-planeta-saghi-usaphrtkho-produqtebi-mdgradi-sophlis-meurneoba
52 http://www.bioservice.ge
53 https://tenders.procurement.gov.ge/public/library/contract.php?go=212027
54 http://www.agrobest.ge
55 https://bit.ly/2XSBDYa
56 http://www.agrovitafsc.com/organic-farming



I.E. BIOCERTIFICATION

Biocertificates are issued by only one accredited commercial organization - Caucascert.[57] Founded in 2005 by Elkana with support from HEKS-EPER, SDC and GiZ, it is the first and only local organic certification company in Georgia. While there are numerous products imported by commercial organizations operating within the country, they are certified by ECOCERT,[58] an offshore company that is not registered in Georgia.

Caucascert was accredited in 2008 by the German accreditation body DakkS. Since the end of 2011, it has been included in the list of third-country equivalent organic certification agencies and its biocertificates are recognized in European markets.

Caucascert can certify the following categories of bioproducts:

- Primary/unprocessed plant products (agricultural crop growing and wild plant collection)
- Live animals and unprocessed animal products (including beekeeping)
- Processed agricultural products (including biowine)
- Plant propagating material and seeds

Every inspection by Caucascert that is essential to certification costs approximately GEL 1000 or more.

According to the regularly updated Caucascert list, there are 27 biocertified primary producers/processors (3 are agricultural input producers) and 69 that are primary producers or processors undergoing conversion. This situation is mostly unchanged since February 2, 2018. At that time, there were only 40 producers under conversion.[59]

When identifying specific operations, the majority are working in plant growing, grape growing/winemaking and beekeeping. Out of the 96 enterprises, 14 operate in production, 73 embrace both production and processing, 6 are engaged in processing, and the remaining 3 are manufacturers of production inputs. There are no shopping facilities or trading companies certified (or under conversion) so far.

For horticulture (excluding grape growing and winemaking), 6 operations are biocertified and 12 are under conversion. There are no companies involved with livestock or dairy production (there were a few last year). Throughout Georgia's history of certification, a comparatively large number of certificates (25) have been annulled.

Table 1. Agricultural field distribution of persons involved in biocertification by Caucascert, March-April, 2019[60]

Agricultural sub-field	Biocertification status	Number
Grape growing and winemaking	Certified	11
	In conversion	30
Beekeeping	Certified	0
	In conversion	24
Wild plants	Certified	24
	In conversion	11
Bioinputs	Certified	3
	In conversion	0
Tea	Certified	1
	In conversion	2

Agricultural sub-field	Biocertification status	Number
Blackberry	Certified	0
	In conversion	4
Hazelnut	Certified	1
	In conversion	0
Carrots	Certified	0
	In conversion	1
Fruits	Certified	0
	In conversion	1
Rose oil	Certified	0
	In conversion	1
Bay leaf	Certified	0
	In conversion	1
Melons and gourds	Certified	0
	In conversion	1
Potatoes	Certified	0
	In conversion	1
Mixed (corn, potato, fruits)	Certified	0
	In conversion	1
Mixed (cereals, fruits)	Certified	0
	In conversion	1
Total	Certified	27
	In conversion	69

57 www.caucascert.ge

58 http://www.ecocert.com/en/certification/index.html

59 http://iset-pi.ge/index.php/ka/iset-economist-blog/entry/2018-03-15-06-59-04

60 Source: Caucascert.

I.F. BIOPRODUCTION-SUPPORTING NGOS AND COMPANIES

The number of non-commercial organizations in Georgia whose principal lines of activity includes plant bioproduction is rather small. There are considerably more conventional organizations whose portfolio of activities do not specifically prioritize bioefforts. Recognizing current dynamics, these organizations are willing to consider bioproduction for future development on par with "non-bio" efforts.

A few of the NGOs actively working in the direction of organic plant growing and processing[61] worth mentioning are Berry Growers Association,[62] whose activity encompasses both conventional and organic berry growers; Bioproducers Association (Bioginger and bioharicot trial projects),[63] and the Organic Tea Growers Association.

The Biological Farming Association Elkana, a union of farmers the fostering the development of sustainable organic farming in Georgia, has implemented dozens of large, medium and small projects that promote individual bioproducts or the production as a whole, including the support of biocertification. The association runs its own experimental farms in the villages of Tsnisi (Samtskhe-Javakheti region) and Zemo Khodasheni (Kakheti region).

The Taso Foundation also promotes bio-farming with activities that empower women in rural areas. Within the framework of several multiphase projects funded by UN Women, the Taso Foundation was promoting bioproduction in 2011-2015 and seeks to continue these efforts.[64]

Other companies step up to support bioproduction from time to time. At the time of this survey, Bioagro LLC and Saperavi TV were active.

Bioagro LLC is known for its production of biofertilizers. As part of their community outreach, the company makes a considerable effort to popularize bioproduction - directly supporting sales of its bioproducts. Similarly, Saperavi TV exploits media exposure to raise bio-awareness.

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61 According to the methodology, the study does not include the biowine making, beekeeping and cattle breeding.

62 http://agronews.ge/kenkrovani-kulturebis-biologiuri-methodith-movla-moqhvanis-teqnologiebi-mekenkretha-asotsiatsiisthvis/

63 https://www.facebook.com/organicgeo.ge/photos/pcb.301242203841599/301241837174969/?type=3&theater.

64 "We'd like to invite trainers and diffuse the bio-farming knowledge in 5 regions of Georgia, where we have been working with women living in rural areas since 2018" (quotation from the survey).

I.G. BIOPRODUCTION PROMOTING DONORS AND INTERNATIONAL ORGANIZATIONS

There are a number of organizations and programs that support bioproduction and, at the same time, provide support to non-bio activities:

- German organization Bread for the World[65]
- Swiss NGO HEKS-EPER
- Austrian Development Agency (ADA)
- Czech NGO People in Need (PIN)
- Danish International Development Agency DANIDA
- European Union
- United Nations Development Program (UNDP)
- United States Agency for International Development/-Cultivating New Frontiers in Agriculture (USAID/CNFA)
- Swedish International Development Cooperation Agency (SIDA)

The German organization - Bread for the World - has been funding Elkana's organic agriculture development program since 1994. With this support, Elkana has formed a professional bioadvisory service, delivers general and sector specific training programs, and distributes a wide range of publications that feature biointensive farm and organic agriculture guidelines, sector specific issues, and advisories for biofarmers.

HEKS-EPER has been supporting the establishment of a biohazelnut production system in cooperation with Elkana. Last year, the project attracted additional support from the Danish International Development Agency DANIDA[66] as well as the Austrian Development Agency (ADA).

UNDP, in cooperation with government and industry specialists, has developed a modular program for vocational institutions that facilitates a five-degree biofarmer qualification (see the Education and Research

section of this report). In addition, they have produced a biofarmer's manual in cooperation with the Scientific Research Center of Agriculture.

The EU has provided support for the Eastern Partnership: Ready to Trade - EU4 Business Initiative[69] that was initiated in 2018. It's goal is to enhance international trade between SMEs from the six Eastern Partnership countries and markets in the EU. This project has been implemented within the framework of the Deep and Comprehensive Free Trade Area and EU Association Agreement (AA).[70]

Recognizing the urgent need for biomethods that would be effectively against the Brown Marmorated Stink Bug (BMSB), the Austrian Development Agency (ADA) quickly allocated 10,000 Euros for a series of Elkana-led trials that were implemented in 2018.

As of 2019, EU, ADA and SIDA are jointly implementing a multi-million project (GRETA), which will concurrently promote mountain tourism and organic agriculture in Georgia's Zemo Svaneti, Racha-Lechkhumi, Kvemo Svaneti and Imereti mountainous regions.

The goal of the Czech NGO People in Need (PIN) has been the reduction of poverty and inequalities through empowerment, particularly for individuals living in Georgia's more rural areas. To achieve these objectives, the promotion of bioproduction continues to be one of the topics that is regularly emphasized. As part of this agenda, a consumer-oriented survey about bioproducts was recently conducted in supermarkets throughout the region.

With a significant presence in Georgia, USAID continues to promote the development of organic agriculture.[71] These efforts include funding for this study which was funded by USAID through its sub-contractor CNFA. Attention was also given to bioproduction by USAID's recently concluded agricultural programme Restoring Efficiency to Agriculture Production (REAP).[72]

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65 In the 1990s, the first projects were supported by two funds from the German Protestant Church: Diakonisches Werk and EZE/EED. Later on, these funds were united into the single organization - the Bread for the World (https://www.brot-fuer-die-welt.de), which now supports Elkana.

66 http://ghn.ge/com/news/view/215280

67 https://reginfo.ge/economic/item/11370-racha-lechxumshi,-qvemo-svanetsa-da-imeretshi-biznesistvis-6-8-milioni-evro- gamoiybo

68 https://bit.ly/2GMjmGS

69 http://www.moe.gov.ge/en/news/2018-07-03-presentation-of-the-european-union

70 http://eeas.europa.eu/archives/delegations/georgia/documents/eap_aa/dcfta_guide_2014_en.pdf

71 http://eugeorgia.info/ka/article/754/farkonma-2017-wlidan-ukve-marketingulad-shefutuli-produqciis-eqsporti-daiwyo

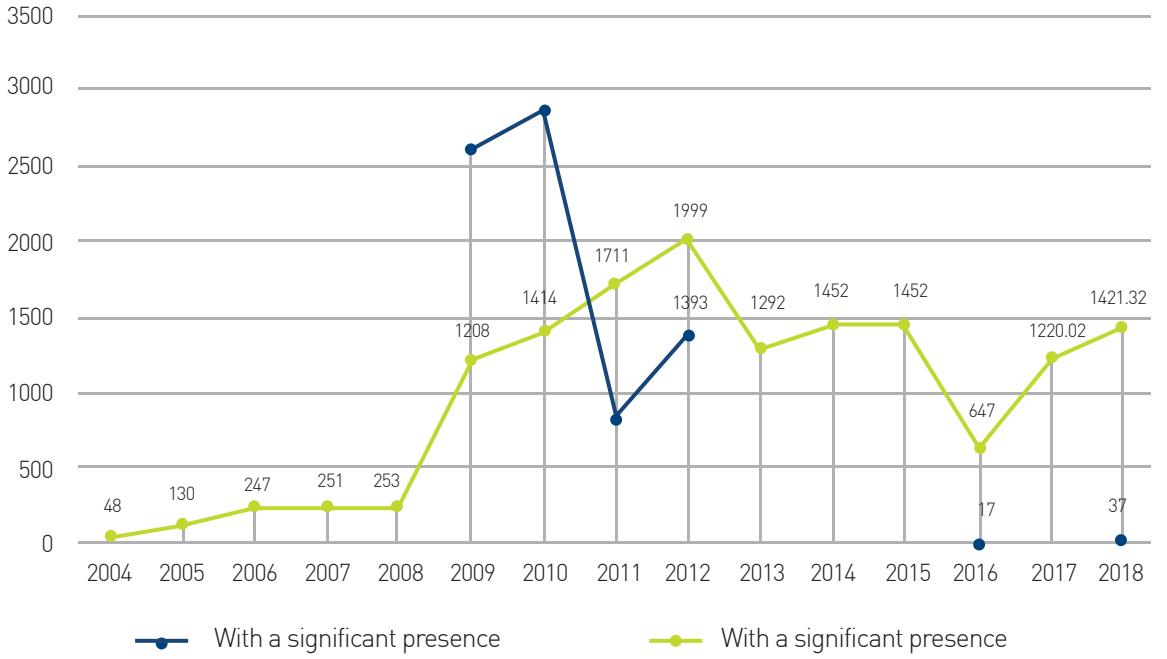
72 http://adjara.gov.ge/branches/description.aspx?gtid=628753&gid=4#.XHjgSalzblU

I.H. CHARACTERIZATION OF THE BIOPRODUCTION SECTOR IN GEORGIA

Local biopesticide producers

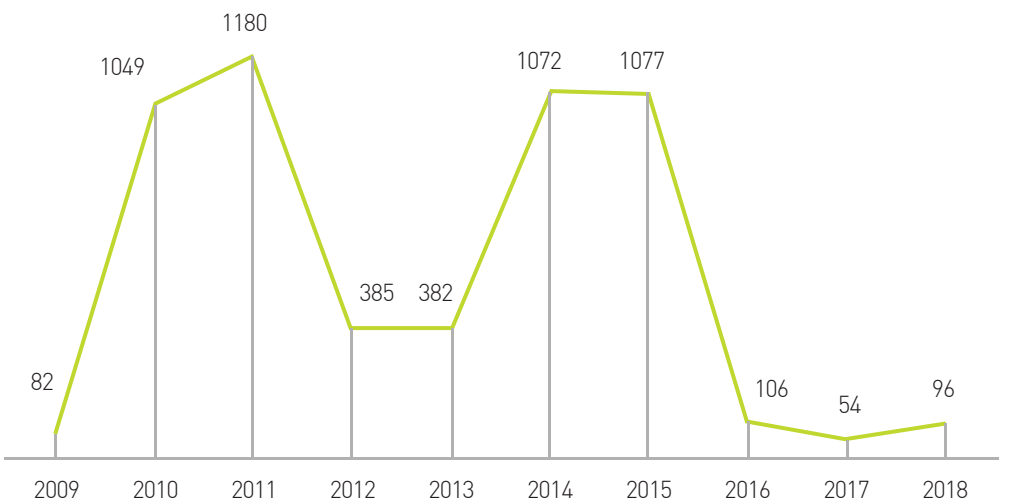
Although popularization of bioproduction in Georgia started in the early 1990s and the first (and only) biocertification body was established in 2005, bioproduction is still in its infancy and a full-value bioproducts market has not yet been established. This is apparent when looking at statistics for total land area dedicated to biocertified plants and croplands.

Diagram 2: Land area used for cultivation of biocertified plants in Georgia, 2004-2018, ha[73]



Collection of wild plants before 2012 was essentially determined by activities of HiPP, a German food company operating in Georgia. Once the company decided to leave the Georgian market, sector activity experienced a dramatic decline. It wasn't until 2017, and the appearance of new companies entering and re-invigorating the sector, that improvements, although negligible, took place. Similar dynamics are also associated with the quantity of bioproducers (bio-operators) in Georgia.

Diagram 3: Number of bio-operators by year [74]



The growth of bioproduction in 2010-11 and 2014-15 is closely linked to two important factors. With donor support, Elkana was able to subsidize biocertification, leading to a rapid increase in the number of producers. Without additional resources to cover the costs associated with biocertification, as soon as the subsidies were stopped, their numbers quickly diminished. The second factor was the arrival of HiPP to the Georgian market. While operational, this company represented significant demand for non-timber forest products. As a result, the number of relevant bio-operators and bio-certified production increased. As soon as the company decided to leave the Georgian market, both indicators dropped steeply.

Today, there are 27 biocertificate holders in Georgia with 69 operations in the process of conversion. Of these, 35 are engaged in primary production and 61 have embraced both production and processing. Unfortunately, there are no retail facilities or trading companies certified or in conversion. The distribution, based on specific products, is as follows:[75]

Table 2: Numbers of biocertified and in-conversion legal & physical persons and areas by sector

Sector	Certified			Convertible			Total area, ha	Total number of operators
	Area, ha	Number of farmers	Number of companies	Area, ha	Number of farmers	Number of companies		
Grapes and Wine	95,81	5	6	417,9	13	17	513,71	41
Beekeeping					24		0	24
Wild Plant Collection	37		10			1	37	11
Berry				47,1	1	3	47,1	4
Tea	10		1	41,52		2	51,52	3
Production Inputs (fertilizer, etc.)			3			1	0	3
Mixed farm (plant growing, Seed farming, animal breeding)				102,95	1	1	102,95	2
Vegetables	542,9			13	1	1	13	2
Hazelnuts			1	84,82			542,9	1
Melon				18,33	1	1	84,82	1
Fruit							18,33	1
Greens	39		1				39	1
Bay leaf				5		1	5	1
Rose oil				3	1		3	1
Total	**724,71**	**5**	**22**	**733,62**	**42**	**27**	**1458,33**	**96**

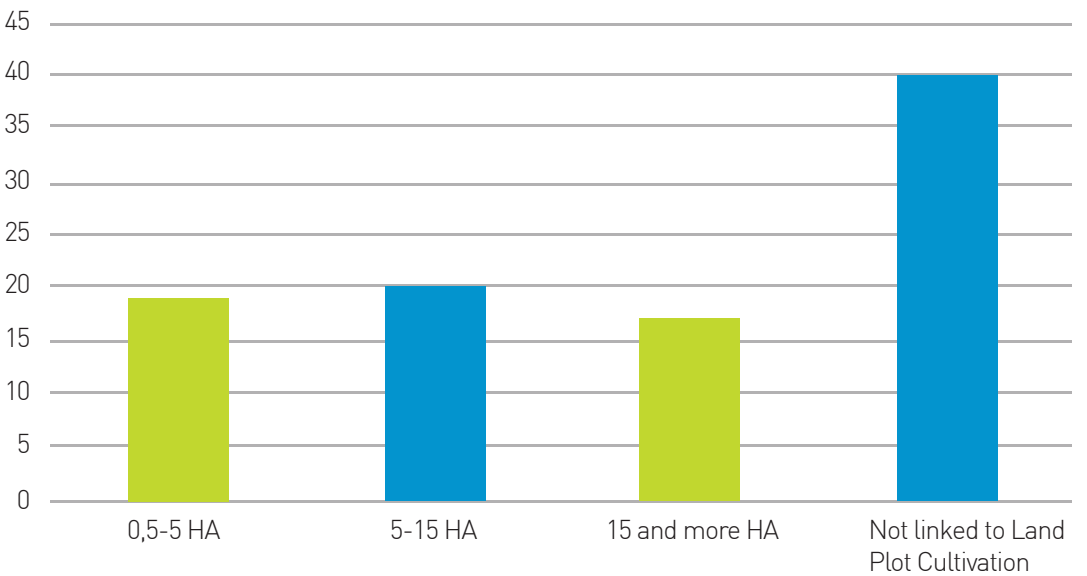
When looking at the number of operators and product distribution, two peculiarities are apparent:

•While the numbers of biocertified operators engaged in beekeeping and collection / processing of wild plants are comparatively high, it is impossible to estimate the area (ha) these operations require.

•A large number of hazelnut producers are registered as a single bio-operator via a group certification scheme organized by the biocertified hazelnut processing enterprise Anka Fair Trade LLC (AFT).

Of the 69 operators undergoing conversion, majority are beekeepers and wild plant collectors, operations that are not directly associated with agricultural cultivation.

Diagram 4: Number of bio-operators by land area [76]



Given a small number of bioareas and bio-operators, it is natural that sales of bioproducts in Georgia are attributed to a small product range and production outputs.

Table 3: Output of biocertified products, 2016 [77]

Product	Amount, 2016	Amount, 2018	Amount, 2018
Wine (Saperavi)	1965	2400	Bottle
Licorice, dried	300	182.5	Ton
Nettle, dried	52	40.5	Ton
Wild apple, dried	42	51.180	Ton
Rosehips	30	12.4	Ton
Rosehip seed	30	39.4	Ton
Cowberry, dried	2,581	-	Ton
Black tea	1.71	0.5	Ton

Product	Amount, 2016	Amount, 2018	Amount, 2018
Green tea	1.71	-	Ton
Grapes (Usakhelauri)	1,235	-	Ton
Sea-buckthorn, dried	1,025	-	Ton
Wild plum	1	-	Ton
Bilberry leaves, dried	0,93	31.834	Ton
Silver fir cones	-	5.73	Ton
Silver fir seeds	-	5.158	Ton
Cowberry	-	12.575	Ton
Cowberry leaves, dried	-	33.77	Ton
Non-timber forest products	-	6.889	Ton

It is important to note that all locally produced biocertified products are exported to foreign markets. There are two main reasons for this dynamic:

•Biocertificates are sought by bioproducers specifically for export-oriented products

•A separate group of bioproducers catering specifically to local markets has not yet formed.

Although certified Georgian bioproducts are not sold in local markets, this is not an indicator of limited demand. To the contrary, a network of leading supermarkets offer a wide variety of bioproducts including tea, coffee, vermicelli, candies, cosmetics, and more. They are, however, only known and sought after by a relatively small number of consumers. It is important to note that local retailers have no inventory of locally grown and biocertified fruits or vegetables.

Generally speaking, bioproducts have not yet distinguished themselves in Georgian markets as a unique class of products with its own price structure.

While there is a limited range of biocertified products in Georgia today, a recent survey indicates there are a significant number of products available that have been produced using biological methods. For various reasons, they are not yet certified.

Table 4: Data on primary and secondary production (processed) products [78]

Product	Output (kg)			Income (GEL)		
	2016	2018	2019	2016	2018	2019
Tea	430,830	431,600	435,000	2,317,120	2,299,350	2,881,820
Non-timber forest products	560,831	852,656	1,009,207	1,237,626	1,795,856	2,025,432
Vegetables	518,618	751,327	894,527	706,603	1,039,626	1,233,045
Fruit	237,500	374,579	573,015	309,650	480,258	576,207
Berries	70,000	81,846	151,375	181,000	230,236	485,800
Cereals	261,000	355,100	394,800	238,550	384,725	335,375
Dried fruit	5,500	7,066	9,747	56,400	75,531	130,157
Potato	60,800	91,300	91,000	50,050	78,850	77,500
Fruit juices	4,000	5,000	26,591	21,400	26,290	46,820
Processed fruit (jam, tklapi, churchkhela, etc.)	0	1,050	1,079	0	678	748
Total				5,118,399	6,411,400	7,792,903

When looking at income figures, and in consideration of the 20% annual increase, there is no doubt that favorable growth potential exists for foods produced using biological methods.

Under these conditions, including stable growth in some categories (the most significant increases are linked to vegetables, dried fruit and fruit juices) along with increasing demand, it would seem that assistance could help materialize growth of biocertification and bioproduction.

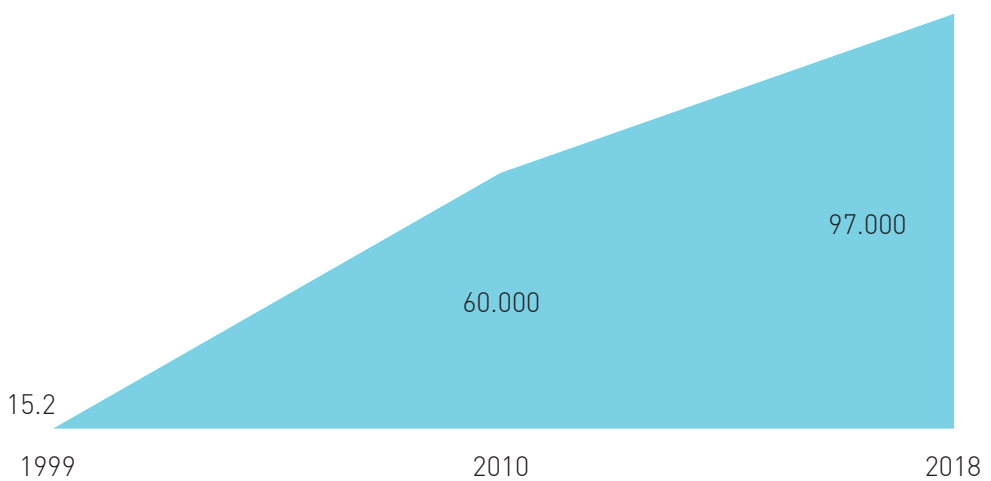
The statistics indicating a demand for bioproducts such as fruit, vegetables, fruit juices, various teas, berries, and potatoes are also a reflection of widespread and growing concerns from consumers about the foods they eat and ways in which they can better support a healthy lifestyle.

In order to better confirm these assumptions linked to capabilities and prospects of bioproducton in Georgia, international market tendencies need to be further analyzed.

World biomarket and Georgian export potential

The global biological food market has maintained stable growth throughout its history. According to recent data, its total value reached USD 97 billion in 2017, representing considerable growth since 1999 and a value of only USD 15.2 mln.

Diagram 5: World biomarket growth, USD mln[79]

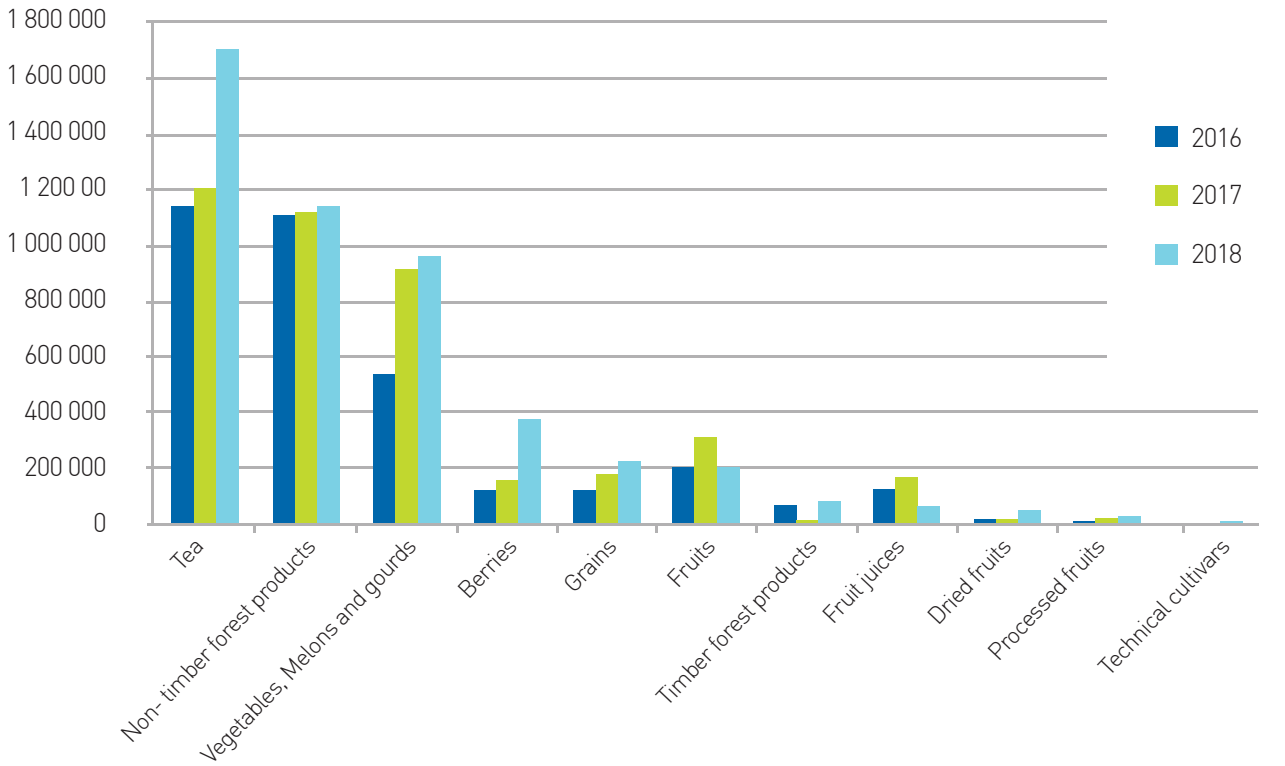


In the last few years, the global bioproduct market has experienced steady growth at a rate of approximately 7%-9% per year. According to 2018 export certification data provided by Caucascert, Georgia exported USD 1,571,404 in certified bioproducts, the majority in non-timber forest products (USD 1,376,158). This figure represents USD 318,478 in exports to Denmark and USD 1,057,680 to Germany. The exports to Germany included greens valued at USD 173,674 and wines in the amount of USD 14,070. Tea valued in the amount of USD 7,500 was sold to the Czech Republic.

Considering that the German bioproduct market is one of the largest in Europe, it is no surprise that the majority of Georgian bioproduct exports are destined for that country. Coincidentally, Germany is also a leading exporter of bioproducts.

Current exports of Georgian certified bioproducts are limited in terms of both volume and variety. A survey conducted as part of this study identified many producers of both primary and secondary agricultural products who embrace biomethods but are not certified. Production for the last 3 years is shown in the chart below.

Diagram 6. Three-year dynamics of plant products produced in Georgia using biomethods, GEL[80]



While the largest buyer of Georgian bioproducts is Germany, there is tremendous potential for Georgian bioproducts to enter other export markets. To estimate this potential, a study of leading exporters of bioproducts was conducted on the basis of US Organic Trade Association (OTA) trade data for 2011-2016 and additional data from eugeorgia.info. The end result was the identification of export opportunities for Georgian bioproducts.

Table 5. Georgian export potential by destination country

Product	Germany	Czech Republic	Denmark	France	Italy	Sweden
Fruit						
Fruit juice						
Vegetables						
Tea						
Dried fruit						
Cereals						
Berries						
Potato						
Processed fruit (jam, tklapi, churchkhela, etc.)						
Non-timber forest products						

73 Source: Caucascert.
74 Source: Caucascert.
75 Source: Caucascert.
76 Source: Caucascert.
77 Source: Caucascert.
78 Source: the survey conducted in the framework of the present study.
79 Source: IFOAM.
80 Source: the survey conducted in the framework of the present study.

Ii. Major Constraints and Prospects

This study considers a wide range of factors that could either limit or support bioproduction in Georgia. The data, obtained from surveys, internal studies, established resources and knowledge accumulated by Elkana has been evaluated and, in the text below, outlines the primary challenges associated with bio-production.

CONSTRAINTS

Constraint #1: Small volume and variety of certified bioproducts

In order to promote the formation of a local biomarket, there must be an uninterrupted supply and extensive variety of bioproducts. With limited volume and variety, a poorly formed supply chain, and only one biocertification body, biomarkets in Georgia are in an embryonic state. Based on these condition, especially insufficient quantities of bioproducts that would be needed to satisfy trade agreements, export potential remains low.

Based on the outcome of consumer surveys conducted by Elkana during farm fairs that took place in 2016-2017, there is a well defined segment of the population that has expressed a clear concern for the quality and integrity of the foods they consume. Unfortunately, there is a lack of available information for consumers to use to better understand the challenges and benefits associated with bioproducts. In addition, Elkana has found that inexperienced farmers are frequently using excessive amounts of chemical fertilizers that could put human health at great risk.

The survey also reveals the largest number of individuals certified or undergoing conversion at Caucascert are engaged in the production of honey and beekeeping. are engaged in the production of honey and beekeeping. Recognizing that consumers are seeking out a broader range of fresh products including vegetables, fruits, dairy products, meat and honey, it is clear that imports alone cannot satisfy this demand. When the high prices associated with bioproducts and the added costs of logistics are factored in, imported bioproducts becomes unaffordable to an average Georgian consumer.

There is no doubt that Georgian consumers are ready to pay a premium for better health and safety. A survey of supermarket visitors conducted last December by People in Need (PIN) indicates there are consumers willing to pay 5%-100% more for bioproducts over conventional goods. The surveys conducted by Elkana found similar preferences - consumers more than happy to spend 10%-15% more on bioproducts. The acceptable difference in price between bioproducts and conventional goods, even if it reaches 50%, would be sufficient for a vital biomarket to emerge.

One of the more troubling dynamics comes from small-scale farmers who exploit the absence of certification and lack of consumer understanding about

bioproduction. Whether they use biological methods in full or only in part, their ability to sell directly to consumers creates opportunities for falsification and limits the levels of trust that can be achieved.

Recognizing that Georgia's bioproduction is supported entirely by small-scale operations, the formation of a vibrant local biomarket is difficult to achieve. In addition, the markets have evolved, moving away from rural markets and focusing more upon larger networks of established supermarkets.

In response to these dynamics, the sector must be able to generate a specified quantity and variety of bioproducts, maintain regular supplies, and make certain guarantees (i.e. bioproducts need to be certified). Given the underdeveloped nature of the existing biomarket, it is difficult to motivate producers to find sufficient resources, plan properly, and fully anticipate the challenges associated with a 3-year conversion period.

There have been attempts to create small bioproduct shops in local markets through relationships with farmers built on a foundation of trust. Unfortunately, small production volumes can create situations where farmers fail to satisfy retailers' needs, forcing the less trustworthy operators to find additional supplies from unreliable sources. This effectively damages the trust and creates an unstable situation for retailers.

Small scale bioproduction also limits the development of export potential. While the popularity of bioproducts in international markets represents significant opportunity for exports, Georgian bioproduction lacks the critical mass essential to build sustainable export relationships.

For many producers, their first attempts to export bioproducts includes certain quantities of conventional analogues (hazelnuts, dried non-timber forest products, etc.) as well as other, considerably more profitable products (wines of local origin, wild plants, etc.). As a rule, it takes larger producers to maintain exports of certified bioproducts. Recognizing that Georgian operations of this size are rare, rapid realization of export potential is virtually impossible.

Limited supply of certified primary (raw) materials has a measurable impact on secondary (value added) bioprocessors. While secondary producers could assume the burden of both primary and secondary product certification, resolving product consolidation and related financial issues represents significant risk.

Constraint #2: Length (3 years) and high cost of certification process

It takes 3 years to obtain a biocertificate, barring any violations or external interference, starting from the moment the operator begins the conversion process. During conversion, an operator is required to pay for annual inspection costs which can vary depending on a number of parameters (i.e. distance from the certification body's office, size of land area, number of crops).

Although Caucascert inspection costs are lower than those charged by similar bodies abroad, they still represent a considerable expense to Georgian biofarmers. In order to validate this investment, most of the individuals applying to Caucascert for certification are doing so with an expectation of above average prices for biocertified products, especially from export markets. Considering that little distinction exists between biological and conventional products in local markets, producers have no guarantee that markups on their bioproducts will offset the costs associated with biocertification. It is worth noting that the length of time required for conversion along with the associated costs are about the same in external markets. That being said, there are a variety of grants and subsidies available to offset those costs in those markets that are not yet offered in Georgia.

There is no doubt that the high cost of certification in Georgia's underdeveloped biomarket prevents the majority of farmers, basically small- to medium-size producers, from pursing certification of their bioproducts. While there are a small number of farmers who manage to obtain certification, the volume and variety of their bioproducts is limited, preventing the formation of a fully functional biomarket with sustainable export potential. Fortunately, research indicates there are a number of producers who have already elected to embrace biomethods. Assuming assistance could be provided to these operators for biocertification and increased production, it is conceivable that a fully functional biomarket sector could be created.

In addition, both chemical and non-chemical imported fertilizers and pesticides enjoy a major market advantage over locally produced biofertilizers and biopesticides. Registration alone is required for the imports (considerably simpler than locally produced equivalents) whereas locally produced biofertilizers and biopesticides must be certified.

Constraint #3: Farmers lack knowledge about bioproduction issues / Limited availability of qualified bioproduction experts

Commercial agricultural bioproduction is new to Georgia. As such, testing of bio-methods and bioinputs under diverse natural, climatic and soil conditions, as well as on different crops, rarely occurs.

In order to increase the economic impact of bioproduction in Georgia, communicating effectively with farmers and creating an effective and reliable system for the distribution of agricultural information is essential. Considering that agricultural production is viewed as manual labor-intensive, relies on inadequate agricultural bioinputs, harvests are reduced or lost altogether, and certificates can be lost due to unforeseen and/or unfavorable circumstances (i.e. unforseen spread of disease or pests), it is equally important to eliminate negative and poorly informed perceptions.

A separate concern is the absence of bioproduction specialists (i.e. agronomists, plant protection and soil scientists) as well as academic institutions that can provide adequate training. For years, the agricultural sector has been enduring an acute shortage of conventional agricultural specialists and loss of qualifications due to high unemployment and migration to other sectors in search of jobs.

Constraint #4: Lack of agricultural bioinputs in Georgia

Knowing about, and having easy access to a wide range of biofertilizers and plant protection agents are essential prerequisites for the development of bioproduction. While there are several biofertilizers and plant protection agents registered and marketed in Georgia, their applications are limited and fail to produce the desired results. This stems from a lack of bioproduction in the country and a lack of commercial interest from importers to develop the bioinput sector further. It is feasible to believe that, with the development of more intensive programs that support Georgian bioproduction, importers will have greater incentive to supply bioinputs. Assuming this can happen, initiating more rigorous professional testing of these bioinputs under local conditions would prove beneficial.

Establishing a sales network for bioinputs is equally important. With a well-established network of farmer service centers throughout Georgia, these enterprises are well positioned to provide both sales as well as technical consultations. Knowing that bioinputs respond to a different set of variables that traditional equivalents, companies could re-train their consultants and update their qualifications to better understand these products and advise the farming community.

Constraint #5: Lack of information about both local and export bioproduct markets

In the absence of market insights, there is an undeniable need among bioproducers regularly updated information about local and export markets.

Along with certification costs, an overwhelming lack of technical information increases the risks and hinders decision making that bioproducers must address. As such, it is easy to understand why there are only a few enthusiastic producers and exporters who are willing to confront these challenges. It is important to note that, along with bioproducers, there must be an informed and enthusiastic consumer base as well.

Prospects

Factors that favor bioproduction can be divided in 3 groups:

Historical and social-economic factors

•Georgian consumers are historically oriented toward foods that have distinctive flavor profiles. Industrial foods frequently fall short

•Recognizing uncontrolled and/or excessive use of chemicals in food production, consumers are looking for alternative, healthier solutions

•Consumers pursuing lifestyles that focus on health and wellbeing are willing to pay a higher price for products that cater to this agenda.

Political and legislative factors

•Legislation that sets parameters for bioproduction is in effect in Georgia

•A qualified, Georgia-based biocertification body - Caucascert - is operational

•Development of bioproduction is an officially declared government priority

•There are a variety of government and donor-supported investment programs and projects underway in Georgia

Production factors

•Farmers can make use of the Plant the Future program, the harvest insurance program, services of Mechanizatori LLC, agricultural credits, and various grant programs

•Infrastructure restoration projects (roads and irrigation channels) have been implemented

•Donor organizations conduct trainings and technical assistance with agricultural and farming issues

•A wide range of modern agricultural inputs have become available in Georgia

Based on the dynamics, projects and activities described above, it is clear that the demand for bioproducts is on the rise. This should be sufficient to motivate bioproducers, especially when the level of competition within the sector is low (one third to one half of the respondents surveyed in this study indicated they will either start bioproduction or expect their first harvest in 2019).

It is equally apparent that there is a rising demand for certified bioproducts to international (primarily European) markets.

Iii. Further Steps

Recommendations have been prepared to offset the major constraints to the development of bioproduction as follows:

Constraint #1 - Small volumes and small ranges of certified bioproducts

RECOMMENDED: Elaborate upon programs and activities in a manner that will motivate farmers and entrepreneurs interested in bioproduction to create complete bioproduct value chains.

IMPLEMENTERS: Government of Georgia (GoG), Ministry of Environmental Protection and Agriculture (MEPA) and its operating divisions, international donor organizations, and financial institutions.

CHALLENGES TO IMPLEMENTATION:

•Lack of bioproduct infrastructure and information about both export potential and target markets diminishes motivation and perceived value of biocertification among producers

•Lack of information about bioproduction in general among consumers, as well as information about effective bioproduction methods, technologies, profitability, and costs among famers, inhibits the transition to biostandards

•The lengthy conversion period and lack of alternative sales channels for the producer during the conversion period increases financial risks

EXEMPLARY INTERVENTIONS:

•Distribution of information and case studies that highlight international best practices and success stories

•Selection of promising bioproduct sectors and implementation of targeted grant programs that will assist in the formation of local value chains and enable exports

•Stimulate formation of new value chains and strengthen those that support highly sought after bioproducts (i.e. subsidizing the creation of a biocorner in retail facilities)

•Create financial models for a variety of bioproducts to confirm profitability

•Develop subsidy programs and targeted grant programs for entrepreneurs willing to participate in bioproduction.

Constraint #2 - Length (3 years) and high cost of certification process

RECOMMENDED: Encourage bioproducers to pursue certification.

IMPLEMENTERS: GoG, MEPA, international donors and the non-governmental sector, financial institutions, exporters, bioproduction consolidation points.

CHALLENGES TO IMPLEMENTATION:

•High certification costs are cost prohibitive to small- and medium-scale farmers

•Inexperience of farmers and producers with modern certification processes is likely to delay conversion

•Lack of accessible biomarkets diminishes motivation to engage in bioproduction

EXEMPLARY INTERVENTIONS:

•Produce and promote case studies that highlight international and local success stories

•Invite qualified experts to consult with biooperators undergoing conversion

•Develop and implement grant programs and financial support that can be applied towards the certification process

•Identify promising bioproduct value chains, then implement tailored grant programs that will assist with their development

•Introduce government programs that will insure against the risks associated with conversion and certification

Constraint #3 - Farmers lack knowledge about bioproduction issues / Limited availability of qualified bioproduction experts

RECOMMENDED: Create an effective bioconsultation system.

IMPLEMENTERS: Various specialists in the agricultural sector, Agricultural Research Center, regional farmer information and consultation centers operating under MEPA, private experts, invited experts, organizations and individuals involved in extension, researchers, agrarian universities, colleges and training centers.

CHALLENGES TO IMPLEMENTATION

•Insufficient basic knowledge about agricultural issues among farmers

•Lack of research and statistics related to the use of biomethods on various (staple) crops under prevalent growing conditions in Georgia

•Inadequate number of local specialists

•Lack of availability and costs to engage specialists

EXEMPLARY INTERVENTIONS

•Engage international experts to retrain local specialists

•Develop and implement programs to retrain specialists

•Engage international experts to assist with the implementation of pilot bioproduction projects and testing of bioinputs

•Arrange demonstration plots

- Develop and promote case studies detailing success stories
- Strengthen regional consultation/advisory services with bioproduction specialists
- Add bioproduction programs to university and college curricula, including relevant training guides
- Implement farmer and entrepreneur retraining programs

Constraint #4 - Lack of agricultural bioinputs in Georgia

RECOMMENDED: Increase the variety and availability of bioinputs by attracting importers and encouraging local production.

IMPLEMENTERS: GoG, MEPA and its operating divisions (National Food Safety Agency, Agricultural Research Center), certification bodies, sales networks for bioproduction inputs.

CHALLENGES TO IMPLEMENTATION

- Many bioinputs are not tested or relevant to conditions prevalent in Georgia
- Local specialists lack experience and technical knowledge regarding the use and impact of bioinputs
- High risk of harvest loss due to misuse of bioinputs
- Potential conflicts of interest within existing sales networks
- Inexperience of bioinput retailers (farmer service centers) regarding sales, storage, handling, and application of bioinputs
- Lengthy registration procedures for locally produced bioinputs

CHALLENGES TO IMPLEMENTATION

- Producers deliver detailed instructions, informational seminars, and trainings to retailers, specialists and farmers regarding bioinput application procedures and effects
- Develop contacts and connections between producers, importers and farmers
- Support the creation of demonstration plots
- Support testing and registration of bioinputs
- Develop, publish and distribute informational materials about bioinput application procedures and effects
- Introduction subsidies for bioinputs in production processes

Constraint #5 - Lack of information about both local and export bioproduct markets

RECOMMENDED: Produce market studies that define consumer needs and preferences and international market trends. Based on these findings, develop relevant recommendations and priorities for bioproducers and potential investors in Georgia.

IMPLEMENTERS: Research centers, NGOs and international organizations, Chamber of Commerce, private researchers, importers, exporters, extension services.

CHALLENGES TO IMPLEMENTATION:

•Lack of information available to consumers and value chain representatives that accurately describes, and assists with selection of, the bioproducts that are available in local markets

•Lack of information about international markets

•No domestic biomarket system and scarcity of exporters

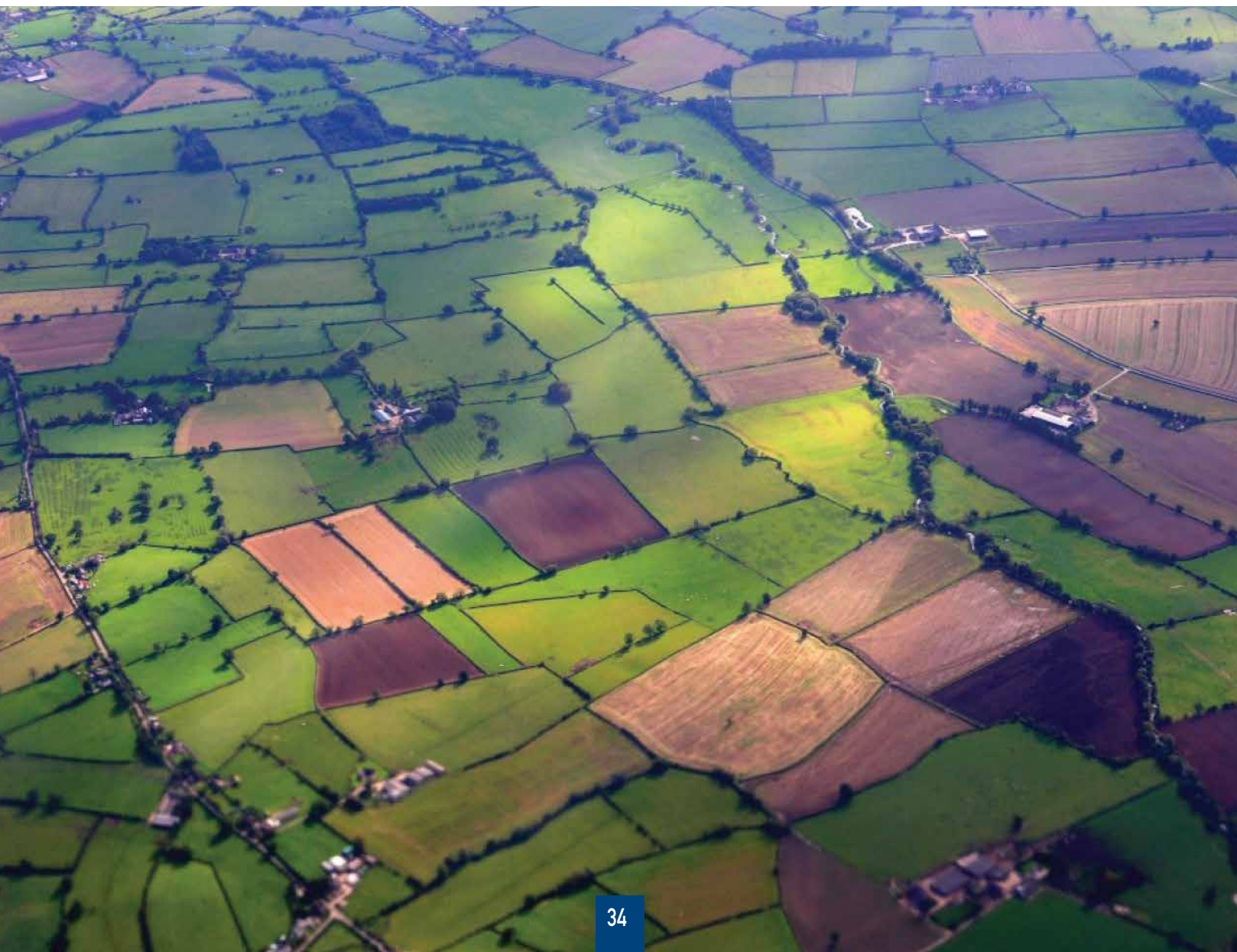
EXEMPLARY INTERVENTIONS:

•Studies of domestic markets to better identify priority bioproducts

•Studies that identify potential export markets for Georgian bioproducts

•Strategies that assist with the development and expansion of bioproduction

•Development of outreach programs, informational campaigns, a bioproduction oriented web-portal, and a system for regular updates and distribution of technical information



APPENDIX 1.
List of respondent farmers, cooperatives and companies

	NAME	TYPE OF BUSINESS	LEGAL FORM	REGION
	Producers			
1	Akaki Ghlonti	Producer	Farmer	Guria
2	David Teneishvili	Producer	Farmer	Guria
3	Mountain Products	Producer	Cooperative	Mtskheta-Tianeti
4	Tamar Ghaneshashvili	Producer	Farmer	Mtskheta-Tianeti
5	Pereta Tea	Producer	LLC	Imereti
6	Lasha Ghlonti	Producer	Farmer	Guria
7	Nargiza Kadaria	Producer	Farmer	Kvemo Kartli
8	Giorgi Noniashvili	Producer	Farmer	Kvemo Kartli
9	Giorgi Lomidze	Producer	Farmer	Samtskhe-Javakheti
10	Iamze Khutsishvili	Producer	Farmer	Samtskhe-Javakheti
11	Valida Gachechiladze	Producer	Farmer	Samtskhe-Javakheti
12	Rural Development Association	Producer	Cooperative	Samtskhe-Javakheti
13	Toki Biological Farm	Producer	LLC	Samtskhe-Javakheti
14	Gea Logos	Producer	LLC	Kakheti
15	Shavra	Producer	LLC	Shida Kartli
16	Otar Nozadze	Producer	Farmer	Kakheti
17	Marina Charkhoshvili	Producer	Farmer	Kakheti
18	Lali Lagazidze	Producer	Farmer	Kakheti
19	Alvani Agro	Producer	Cooperative	Kakheti
20	Lali Sakhashvili	Producer	Farmer	Kakheti
21	Emzar Gakhutishvili	Producer	Farmer	Kakheti
22	Nergebi	Producer	Cooperative	Kakheti
23	Bezhan Machavariani	Producer	Farmer	Imereti
24	Irricult Ge	Producer	LLC	Kakheti
25	Mekhileoba Rioni	Producer	Cooperative	Imereti

	NAME	TYPE OF BUSINESS	LEGAL FORM	REGION
26	Okros Kooperativi	Producer	Cooperative	Ajara AR
27	Satsire	Producer	Cooperative	Imereti
28	Marika Kandorelashvili	Producer	Farmer	Shida Kartli
29	Giorgi Kokozashvili	Producer	Farmer	Shida Kartli
30	Besik Kekenadze	Producer	Farmer	Kakheti
31	Zaal Guliashvili	Producer	Farmer	Shida Kartli
32	Aleksandre Gegelashvili	Producer	Farmer	Shida Kartli
33	Nodar Tsitsagi	Producer	Farmer	Shida Kartli
34	Zakaria Lasharashvili	Producer	Farmer	Shida Kartli
35	Kakhi Bichikashvili	Producer	Farmer	Shida Kartli
36	Agro Bio Plant	Producer	LLC	Mtskheta-Tianeti
37	Anzor Maisuradze	Producer	Farmer	Shida Kartli
38	Tornike Beridze	Producer	Farmer	Kvemo Kartli, Mtskheta -Tianeti
39	Avtandil Beridze	Producer	Farmer	Kvemo Kartli
40	Mkheil Kirakozian	Producer	Farmer	Kvemo Kartli
41	Merab Kechkhoshvili	Producer	Farmer	Kakheti
42	Fiji	Producer	LLC	Kvemo Kartli
43	Maia Bigvava	Producer	Farmer	Kvemo Kartli
44	Mikheil Mdinaradze	Producer	Partnership	Kakheti
45	Nino Onashvili	Producer	Farmer	Kakheti
46	Ketevan Didmanidze	Producer	Farmer	Samtskhe-Javakheti
47	Options	Producer	LLC	Kakheti
48	Bachuki Beridze	Producer	Farmer	Kvemo Kartli
49	David Troghashvili	Producer	Farmer	Kvemo Kartli
50	Gela Zenaishvili	Producer	Farmer	Guria
51	Gevago-2016	Producer	LLC	Guria
52	Giorgi Gulbani	Producer	Farmer	Kvemo Kartli

	NAME	TYPE OF BUSINESS	LEGAL FORM	REGION
53	Giorgi Vasadze	Producer	Farmer	Kakheti
54	Giorgi Khvedelidze	Producer	Farmer	Kakheti
55	Lana Gogilashvili	Producer	Farmer	Mtskheta-Tianeti
56	Nana Sharashidze	Producer	Farmer	Shida Kartli
57	Fragoli	Producer	LLC	Kvemo Kartli
58	Nino Zuriashvili	Producer	Farmer	Kakheti
59	Giorgi Shatirishvili	Producer	Farmer	Kvemo Kartli
60	Bio Organic Georgia	Producer	LLC	Kvemo Kartli
61	Lasha Sukhiashvili	Producer	Farmer	Kvemo Kartli
62	Teona Bitskinashvili	Producer	Farmer	Kakheti
63	Shavnabada	Producer	LLC	Shida Kartli
64	Giorgi Gegelia	Producer	Farmer	Shida Kartli
65	Tamar Tsiklauri	Producer	Farmer	Mtskheta-Tianeti
66	Irina Mshvenieradze	Producer	Farmer	Kakheti
67	Elene Palavandishvili	Producer	Farmer	Kvemo Kartli
68	Zurab Abuashvili	Producer	Farmer	Samegrelo-Zemo Svaneti
69	Tea Kutateladze	Producer	Farmer	Kvemo Kartli
70	Darejan Komoshvili	Producer	Farmer	Samtskhe-Javakheti
71	Durmishkhan Latsabidze	Producer	Farmer	Shida Kartli
72	Kakha Peikrishvili	Producer	Farmer	Kvemo Kartli
73	Kakhaber Bakhtadze	Producer	Farmer	Kvemo Kartli
74	Mate Chitashvili	Producer	Farmer	Kvemo Kartli
75	Tamaz Niparishvili	Producer	Farmer	Shida Kartli
76	David Gelazonia	Producer	Farmer	Samegrelo-Zemo Svaneti
77	Sergo Kardava	Producer	Farmer	Samegrelo-Zemo Svaneti
78	Marina Bechvaia	Producer	Farmer	Samegrelo-Zemo Svaneti
79	Romeo Merebashvili	Producer	Farmer	Mtskheta-Tianeti

	NAME	TYPE OF BUSINESS	LEGAL FORM	REGION
80	David Chkonia	Producer	Farmer	Samegrelo-Zemo Svaneti
81	Platon Darjania	Producer	Farmer	Samegrelo-Zemo Svaneti
82	Bezhan Tsachkhua	Producer	Farmer	Samegrelo-Zemo Svaneti
83	Giorgi Kokaia	Producer	Farmer	Samegrelo-Zemo Svaneti
84	Seiran Amazarian	Producer	Farmer	Samtskhe-Javakheti
85	Apetnak Zandarian	Producer	Farmer	Samtskhe-Javakheti
86	Tinatin Chitanava	Producer	Farmer	Tbilisi
87	Fir Trees	Producer	LLC	Racha-Lechkhumi
88	Ia Devnozashvili	Producer	Farmer	Kvemo Kartli
89	Ana Mghebrishvili	Producer	Farmer	Kakheti
90	Zaza Kharibegashvili	Producer	Farmer	Shida Kartli
91	Gemuani	Producer	LLC	Samegrelo-Zemo Svaneti
92	Demetra G.S.	Producer	LLC	Kakheti
93	Biofarm Phona	Producer	LLC	Kakheti
94	Aroma Product	Producer	LLC	Kartli, Kakheti
95	Kakheti Bio	Producer	LLC	Kakheti
96	Nagomari	Producer	Cooperative	Guria
97	Andranik Muradian	Producer	Farmer	Samtskhe-Javakheti
98	Giorgi Sabashvili	Producer	Farmer	Kakheti
99	Bella Mutoshvili	Producer	Farmer	Kakheti
100	Paata Dzuliashvili	Producer	Farmer	Kakheti
101	Aleksandre Kiladze	Producer	Farmer	Kakheti
102	David Ganjelashvili	Producer	Farmer	Shida Kartli
103	Napareuli Biowine	Producer	Cooperative	Kakheti
104	Becho	Producer	Cooperative	Svaneti
105	Nichbura-2015	Producer	Cooperative	Kvemo Kartli
106	Sunflower Healthfood Store	Producer	Cooperative	Tbilisi

	NAME	TYPE OF BUSINESS	LEGAL FORM	REGION
107	Khaverdovani Chai	Producer	Cooperative	Imereti
108	Geo Flower	Producer	LLC	Racha-Lechkhumi, Guria
109	Baraka	Producer	Cooperative	Shida Kartli
110	Giorgi Akhalbedashvili	Producer	Farmer	Kakheti
111	Otar Davitashvili	Producer	Cooperative	Mtskheta-Tianeti
112	Giorgi Beburidze	Producer	Farmer	Kakheti
113	Mokhevuri Produkti	Producer	Cooperative	Mtskheta-Tianeti
114	Tushetis Nobati	Producer	Cooperative	Kakheti
115	Avtandil Otarashvili	Producer	Farmer	Kakheti
116	Badri Tsikuradze	Producer	Farmer	Shida Kartli
117	Beso Mzhavanadze	Producer	Farmer	Guria
118	Giorgi Lomidze	Producer	Farmer	Kakheti
119	Glakho Kharaishvili	Producer	Farmer	Kakheti
120	Gogi Otiashvili	Producer	Farmer	Kakheti
121	Roki	Producer	Cooperative	Kakheti
122	Levan Esitashvili	Producer	Farmer	Kakheti
123	Mirian Kochauri	Producer	Farmer	Kakheti
124	Nugzar Kharaishvili	Producer	Farmer	Kakheti
125	Tiripona-2014	Producer	Cooperative	Shida Kartli
126	Tamaz Chighladze	Producer	Farmer	Kakheti
127	Vakhtang Dalakishvili	Producer	Farmer	Kakheti
128	Zurab Modeladze	Producer	Farmer	Kakheti
129	Gile	Producer	Cooperative	Kakheti
130	Eka Todadze	Producer	Farmer	Kakheti
131	Gvantsa Akimidze	Producer	Farmer	Kakheti
132	Irodi Bukvaidze	Producer	Farmer	Kakheti
133	Enok Babajanian	Producer	Farmer	Kakheti

	NAME	TYPE OF BUSINESS	LEGAL FORM	REGION
134	Eghizar Aghajanian	Producer	Farmer	Samtskhe-Javakheti
135	Makhare Matsukatov	Producer	Farmer	Samtskhe-Javakheti
136	Aleksandre Vashakidze	Producer	Farmer	Kvemo Kartli
137	Nika Bagalishvili	Producer	Farmer	Kakheti
138	Nikoloz Bedoshvili	Producer	Farmer	Mtskheta-Tianeti
139	Tusheti-2015	Producer	Cooperative	Kakheti
140	Agrocom	Producer	LLC	Shida Kartli
141	MNK Group	Producer	LLC	Imereti
142	Association of Berry Producers	Producer	LLC	Kvemo Kartli
143	Kula	Producer	LLC	Shida Kartli

Processors

1	Iberia Fruits	Processor	LLC	Mtskheta-Tianeti
2	Khilari	Processor	LLC	Shida Kartli
3	Tianetis Nobati	Processor	Cooperative	Mtskheta-Tianeti
4	Bitadze	Processor	LLC	Imereti, Samegrelo-Zemo Svaneti, Guria
5	BPC	Processor	LLC	Tbilisi
6	Kona	Processor	Cooperative	Shida Kartli
7	Georgian Herbs	Processor	LLC	Tbilisi
8	Chirifruti	Processor	LLC	Tbilisi
9	DNC Group	Processor	LLC	Tbilisi
10	Darejan Berdzenishvili	Processor	Farmer	Guria
11	Sobisi Youth Cooperative	Processor	Tbilisi	Shida Kartli
12	Tkibulis Chai	Processor	LLC	Imereti
13	Anaseulis Chai	Processor	LLC	Guria
14	Ioseb Barishvili (Barvil)	Processor	Farmer	Shida Kartli
15	Mariam Iashvili (Dachire)	Processor	Farmer	Kakheti
16	Someji	Processor	Cooperative	Mtskheta-Tianeti

	NAME	TYPE OF BUSINESS	LEGAL FORM	REGION
	Traders			
1	Maria Kevlishvili	Retailer	Farmer	Tbilisi
2	Bio Valley	Retailer	LLC	Tbilisi
3	Soplidan.ge	Retailer	LLC	Tbilisi
4	Restaurant Ezo	Retailer	LLC	Tbilisi
5	La-La-Land	Retailer	LLC	Tbilisi