

## Establishment of quality assurance mechanisms of vocational education specifics in organic farming and its European approaches to Georgia’s example

Ia Mosashvili

*Georgian Technical University, Georgia*

Tea Nadiradze

*National Center for Educational Quality Enhancement, Georgia*

Mzia Beruashvili

*Scientific-Research Center of Agriculture, Georgia*

**Abstract:** One of the most important resources of the country's economic and social progress is the human capital. Consequently, education and science are the areas that are of particular importance for long-term outcomes for the country's development. In the last decade, many reforms have been implemented to transform the Post-Soviet System in the spheres of education and science in Georgia. The Ministry of Education and Science has developed a strategic framework for the development of the education system based on the strengthening of the role of vocational education in the process of human capital development and increasing involvement in the system through the provision of accessibility and accessibility. Based on the professional standards developed by the employers' participation (with the methodology recommended by the European Assistance Project), vocational programs developed which are the sustainable regional development tools and they have been created to link the requirements of the labor market.

The development of agriculture is very important for the development of the country, which starts with the establishment of qualified personnel. Organic agriculture - is a complete, comprehensive system of production management that promotes agro-ecosystems and ensures their health, includes biological diversity and biological cycles. EU legislation, organic production of agricultural products (food and feed) production, processing and marketing of such a system, which is based on the protection of the environment, biological diversity and ecological balance of the natural resources, effective use of industrial-use the methods, such as providing the users requirements, who prefer natural substances and processes using natural products.

National Center for Educational Quality Enhancement of Georgia and the United Nations Development Program "Expansion of Agriculture Systems and Modernization / Development of Vocational Education in Georgia" were developed the vocational educational program "Organic Farming", which is for bio (eco, organic) sector and provides the competitive training courses for the learners of this field. Biofarmer can product the plants and animals according to agricultural standards in organic way and use environmentally safe methods, as well as protection and maintenance for diversities of bio products. Fifth Level Vocational Qualification in Organic Farming will be given to VET students, who will cover up to 120 credits of the program “Organic Farming” (16 credits for general modules, 62 credits for common professional modules, 30 credits for concentration(s) and independent elective modules - in total 12 credits, which should be selected from 36 credits modules).

**Keywords:** quality of education, vocational educational program, organic farming.

### Introduction

In Georgia, since anciently, the agriculture has been considered as a cornerstone of the country on which the name "Georgia" or "Land of the Farmers" indicates. There are also numerous historic, archaeological, ethnographic sources, household, culture and religious monuments, agricultural

traditions and traditions related to fertility. In various historic epochs in Georgia agriculture has performed a significant function of self-preservation, self-sustaining and self-existence. In Georgia the agriculture was and remains the main area of employment. It should be noted that most of the workers in agriculture - up to 85% come from self-employed population. In Georgia traditionally, total 3 million hectares of agricultural land existed. Out of which 900,000 hectares are used as arable land, perennials are 260000 hectares and 400,000 hectares were used for pastures. There was a large share of alpine holes. Only 13% of the total territory of Georgia occupies the bar, the foothills are 34% and the mountains - 53%. Clearly visible vertical zones have led to almost all types of climate and soil described in the world in the country [1].

Agricultural diversity is also mentioned in the specialization. There is no country in the world where there are 11 manufacturing zones of agricultural specialization like in Georgia (with the 3 subzones).

In Georgia as a small country, one of the priority directions is the development of organic farming, which contributes to the location and climatic conditions of the country. The development of bio-agro-production has taken a long time in recent years, and in the summer of the current year, the country's prime minister has initiated the production of bio-products as a priority.

### **The role of the state for biodiversity protection**

The intervention and assistance of the state is a necessary step for the development of organic farming. From the standpoint of economic, agricultural development, international and domestic market for high-quality and competitive agricultural production is necessary for the development of organic farming in the state program, which aims to establish agro-environmental country and create the sustainable organic farming with the development of bio-agro-production.

Biodiversity is the diversity of life, the diversity of living organisms. It is a variety of organisms present in different ecosystems. Georgia, the area of which is 69 700 sq.m. The km is distinguished by its amazing biodiversity. This diversity determines the geographic location and climate of the country. The Greater Caucasus Mountains form the northern boundary, the southern part of the country bordering the small Caucasus Ridge. The Greater Caucasus Mountain Range is much higher than the Lesser Caucasus Mountains. The highest peaks are 5 000 meters above sea level.

The landscape is quite diverse in the borders of the country. The landscape of the west Georgia varies from wetland to the epic glaciers of the Caucasus and in the eastern part of the country is a small segment - semi-dry (arid) vale. The forest cover covers 40% of the territory of Georgia and in the alpine-subalpine zone approximately 10% of the land. 40% of Georgian territory is covered by forest and 40% of agricultural land plots.

Endemic varieties of cultural plants, their wild relatives and local varieties of domestic animals are an important part of Georgia's biodiversity [2].

The concept of agrarian biodiversity implies:

- Cultural plants, their wild relatives, wildy grown plants that are collected by food, hay and pasture plants;
- Genetic resources of domestic animals, hunting animals for food, naturally resident and grown fish and other aquatic organisms;
- Microorganisms and fungi;
- Organisms that support ecosystem services: circulation of nutrients, regulation of pests and diseases, waste management, preservation of hydrological cycles, erosion control, climate regulation and carbon dioxide repression.

The local varieties of cultural plants and domestic animals in Georgia are an important part of World Cultural Heritage. This wealth has been created by the geographical location of the country, the beauty of country and the wisdom of the ancestors. However, the vast majority of local varieties of vines, fruit and cereal crops are only present in the collections.

What are the risks to negatively affecting biodiversity, including agribusiness diversity?

- Excessive extraction. During the human history 23% of the species is extincted due to excessive extraction. Natural populations of wildlife species of cultural plants are also under threat, mainly due to destruction and fragmentation of habitats or their habitats, as well as excessive grazing and desertification processes.

- Degradation of habitat environment (destruction and fragmentation of habitat) is caused by direct human activities such as forest cover, expansion of agricultural land plots, water reservoirs and flood water lands (wetlands, etc.).

- Influence of the species (or intervened) in local species;

- Environment pollution;

- Climate change is added to this.

With an average annual temperature increase of 1 ° C, 10% of the species may be in danger of exacerbation with the rising temperature of the extreme climatic phenomena that can be accompanied by change of sedimentation and intensity. The change of vegetation, blossom and migration schemes has been widespread throughout the world. Local varieties are under threat. Endangered by 60% of endemic species, which is caused by environmental impacts and exposure to chemicals.

Occupied endangered species in Georgia need special protection and conservation measures. Such species are included in the "Red List" of Georgia, including: Plant 56, mammals 29, 35 birds, 11 reptiles, 2 amphibians, 11 fish and 42 species of invertebrates.

How to protect biodiversity?

The improvement of the biodiversity situation should be improved through sustainable management of ecosystem through the protection of genetic diversity (gene-bank in 75% of planted plants), live collections and nurseries, protected areas, increasing the awareness of local varieties and traditional products.

Wild relatives of cultural plants perform a great role in preserving agribusiness diversity. These are taxonomies that are directly related to socio-economic importance or are the ancestors of cultural plants. Their significance is determined by the ability to exchange genes with cultural herbs that have been formed as a result of their birth and improve their quality.

- There are 479 species of 76 species of plants belonging to 20 different plants in Georgia, which are directly related to the cultivation of plants from ancient times on the territory of Georgia.

- Local breeds and their wild ancestors are the most important collection materials. Including adapting to local conditions, to replace new varieties of improved varieties and adapted climatic conditions.

- In the current situation, new varieties will be able to adapt to the modified climatic conditions, the most important task for sustainable development.

- Restoration of windbreaks.

- Research activities should be strengthened in almost all directions in terms of conservation and sustainable development. In particular, the fruit and grapes of the crops and grapes should be formed.

Biodiversity conservation is of great importance: protecting territories should focus on species and habitats, agribusiness, hunt and fisheries regulation, biodiversity monitoring, biosafety, environmental education, community awareness raising, community activation, sustainable forestry, and legislation aspects.

One of the most important way to solve these problems is organic agriculture. Bio-diversity has a crucial role in bio-farming, as biodiversity determines the functional integrity of biological systems and the ability to adapt to the changing conditions [3]. The main emphasis is placed on the traditional local varieties of local conditions. Agricultural plants and animal endemic varieties spread in Georgia are formed by joint action of folk selection and environmental conditions. They are an integral part of the ecosystem and are characterized by a number of unique features - tolerance to

climatic conditions, equilibrium of wetland and / or mountain steep spaces, less demand for food quality, a small amount of food on single products and so on. Their dignity and competitiveness is reflected in the fact that in a particular environment they show a much greater productivity than the universally recognized cultural varieties.

Environment is not damaged at organic farming. On the contrary, it is going to work to restore ecological balance. Different species of grain crops, edible herbs, vegetables, vines and fruit trees should be combined with each other. Only one culture cultivation is unimaginable in organic farming. This is not an organic farming. It is of great importance to mixed crops, seed rotation, replacement of pesticides with alternatives, biofuels, etc.

It should also be taken into account that any agricultural plant and animal species in the bio industry only demonstrates its qualitative and qualitative characteristics, which are protected from synthetic organic pesticides and mineral fertilizers.

Bio Industry - is a system of agricultural production, which is based on ecological processes, contributes to the sustainability of natural equilibrium and bio-diversity in ecosystems. That is why the trend of the world is aimed at increasing the bio-owned areas. Over the past decade, the number of these areas has doubled and exceeded 38 million hectares. The organic farming is an alternative to today's agriculture.

Movement from the intensive industry to the organic farming means to restore and protect soil fertility, local Georgian varieties of plants and animals, avoid many ecological disasters, to care for our future and our future generations [4].

Bio agro-production is regulated by international regulations (European Organic Regulations (EC) No 834/2007, 889/2008 and 1235/2008), Code "Alimentarius", IFOAM (International Federation for Ecological Agriculture Movement), Biograce Production and Processing and Local Legislation. There are relevant regulations in Georgia - Resolution No. 198 of the Government of Georgia "1982" on organic farming entered into force from 1 August 2014. The standard of production, processing, marking and sale of bioproduction ("Green Kavkazus") has been developed.

These regulations define the rule of organic farming, processing, labeling, distributing, realization, voluntary certification, and related relationships. There are more than two decades in the development of organic farming in Georgia. This work is served by the Association of Biomaterials "Elkana", the Ministry of Environmental Protection and Agriculture of the Bureau of Laboratory of the Research Center, several non-governmental organizations, LLC and a) In order to facilitate the development of bio-farms, work is being carried out in Georgia as scientific and advisory-information direction.

### **Vocational educational program in organic farming to Georgia**

Since 2013 Georgia started VET sector reform. Poor image of vocational education from soviet time, abolished system, required fundamental intervention for achieving the goals on the way to approximation to EU education system. The volume of transformation set ambitious agenda for the government and generated the need of well-structured strategy for guiding the reform. With the technical assistance from EU, new vision of reforming the VET programs has been formed anticipating the introduction of flexible, competence based modular programs. Principles of development of modular programs are: orientation on learning outcomes, practice, use of modern methods of teaching and assessment, credit system, accumulation of credits and transfer. Flexibility of programs should enable the use of each module within short term retraining courses for the adults. Modular programs are not only oriented on development of professional skills, but include interpersonal skills such as: communication, foreign language, civic education, literacy, numeracy etc. Ministry of Education and Science and Education together with National Center for Education Quality Enhancement worked on establishment of modular programs into the system during past three years and respectively 97 revised standards and 83 new modular programs have been validated by sectorial committees and adopted by the center head. [5]

The Government of Georgia is currently implementing the Education Development Strategy for 2012-2020 and the Labour Market Formation Strategy and Implementation Action Plan 2015-2018 – supported by a corresponding EU Sector Reform Contract. The new Vocational Education and Training Strategy when coupled with the Labour Market Strategy will take forward previous strategic efforts for creation of extended employment and training opportunities. In this context the new employment and training strategies are the basis for the current EU Project: Technical Assistance to VET and Employment Reforms in Georgia [6].

Fifth level vocational qualification in Organic farming were created in 2018, Georgia and it will be given to VET students, who will cover up to 120 credits of the program “Organic Farming” (16 credits for general modules, 62 credits for common professional modules, 30 credits for concentration(s) and independent elective modules - in total 12 credits, which should be selected from 36 credits modules). 2 concentrations were created: for the specialists of plants and livestock.

For the specialist of plants were determined the following learning outcomes:

1. Organize and manage organic farming;
2. Organize grain biomass crops;
3. Organize vegetable, vegetable and technical crops production;
4. Organize the biomass of fruit and subtropical crops;
5. Plant biomass in the closed ground;
6. Plan the biosafety and carry out the biocontics of bee products;
7. Organize biomedical and grape bio products;
8. Comply with biosafety procedures;
9. Implement the sale of bio production.

And for the specialist of livestock’s were determined the following learning outcomes:

1. Organize and manage organic farming;
2. Organize a biomaterial farm;
3. Bio (eco, organic) farming methods to build and maintain agricultural animals;
4. Take care of bird breeding in the bio farm;
5. Plan the biosafety and conduct biocontics of bee products;
6. Plan a bio tuber
7. Exercise fish farming;
8. Comply with biosafety procedures;
9. Implement the sale of bio production.

This is the vocational educational program that provides a competitive staff for Bio (Eco, Organic) agriculture. The farmer of organic industry will be able to use the ecologically safe methods for organic farming, as well as to protect and maintain bio-diversity.

### **Conclusion**

In 2018, new professional qualifications have been established in vocational education. One of the most important parts of the state program for the development of bio-agro-production in Georgia is the educational strategy of biogrous enterprises, which includes:

1. Some of additions to the school program;
2. Vocational education (VET colleges);
3. Adult education (qualification training courses, retraining);
4. Higher education.

It is a pleasure to see some progress in this field in professional education - new qualification in organic farming has been approved, the relevant guidelines have been prepared and the shifts are observed in higher education too.

Development of organic farms is vital for Georgia, since bio agro production is the future of agriculture, its tomorrow's day.

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