



COST-BENEFIT ANALYSIS OF THE AGRIBUSINESSES ENGAGED IN WORK-BASED LEARNING



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სწავლება
WORK-BASED
LEARNING



Georgian Farmers' Association
საქართველოს ფერმერების ასოციაცია



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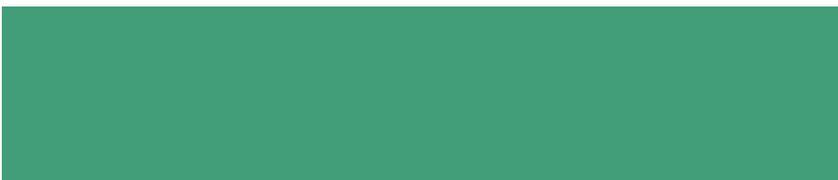
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GEORGIAN FARMERS' ASSOCIATION
 2021



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1. INTRODUCTION

In the course of agriculture development and vocational education reform in Georgia the project Work-Based Learning is being implemented with the support of the UNDP and SDC, with participation of the Ministry of Education and Science of Georgia and Sectorial Skills Organization Agro Duo and with coordination of the Georgian Farmers' Association. The work based learning is being introduced since 2016 in the fields of animal husbandry, fruit growing, beekeeping, meat processing, fishery, gardening and veterinary in the vocational education institutions of eight regions of Georgia (Samegrelo, Kakheti, Samtskhe-Javakheti, Ajara, Racha-Lechkhumi and Kvemo Svaneti, Shida Kartli, Imereti and Mtskheta-Mtianeti).

The new model of vocational education (work-based learning) is a learning process implemented through integration of theory and practice components in an educational institution and on the job (agribusiness / farm).

Currently there are eight vocational institutions engaged in the work based learning:

1. Ilia Tsinamdzgvrivili public college (**Mtskheta / Tsinamdzgvriantkari**)
2. College Aisi (**Kakheti: Kachreti, Kvemo Alvani, Dedoplistskaro**)
3. Shota Meskhia Zugdidi State Teaching University (**Samegrelo: Senaki, Zugdidi**)
4. College Erqvani (**Ambrolauri, Racha-Lechkhumi**)
5. College "Akhali Talga" (**Kobuleti, Ajara**)
6. College Gantiadi (**Gori, Shida Kartli**)
7. College Opizari (**Akhalsikhe, Samtskhe-Javakheti**)
8. College Iberia (**Kutaisi, Imereti**)

Students of the above-mentioned educational institution will be able to have a training practice in agriculture companies and farms. By now, up to 290 students are engaged in the work-based (dual) learning in up to 35 agribusinesses/farms.

1.1 REVIEW OF THE WORK-BASED LEARNING IN AGRICULTURE

Vocational education has a long history in Georgia though on legislative level a Law on Vocational Education was passed by the Georgian parliament on March 28, 2007 with the goal of defining function and place of the vocational education in the country, creating a vocational education system that would meet rapidly and permanently evolving labour market needs.

On December 26, 2013 a strategy for reform of the vocational education and training for 2013 – 2020 was approved. The strategy represents Georgian government’s vision for the development of vocational education in the country.

In these documents special importance is given to overcoming vocational education challenges. The key challenges of the vocational education in Georgia are given below:

- Lack of private sector and civil society engagement on every stage of the vocational education system;
- Currently, vocational education in agriculture is less attractive option for the youth. The employers give lower preference to the people with vocational education in recruitment.
- Lack of qualified teachers in the vocational education

It should be noted that according to the strategy document, the government names lack of the private sector engagement in the vocational education process as a primary challenge. Numerous projects were implemented and are currently under way with the donors’ assistance to overcome this challenge.

The Georgian Farmers’ Association has been facilitating implementation of the Work – Based Learning project since 2016 in the course of agriculture development and vocational education reform with the support from the UNDP, SDC and Ministry of Education and Science and with participation of the sectorial skills organization Agro Duo. The project ensures introduction of the new model of vocational education – work based learning in various areas of agriculture.

The work-based learning is a process of learning while performing a real-life work.

The new model of work-based learning implies taking theory part of the vocational program in the vocational education institution and taking practice part in the enterprises/private agribusiness as per dual learning principle.

It should be noted that the field of vocational education is regulated by the Law on Vocational Education passed by the Parliament in 2018 that replaced the Law on Vocational Education that

was in force since 2007. Its active introduction started in 2019. The law reflects social and economic challenges and is linked to the EU Association Agreement commitments. The law sets up a legal basis for introducing various forms of work-based learning.

It should be noted that non-governmental organization Agro Duo was set up in 2019 comprising sectorial associations in the field of agriculture. It aims for capacity building of the human resources in agriculture through providing quality vocational education.

Numerous studies were conducted by local as well as international organizations/persons to evaluate and study current state of vocational education.

The Department of Vocational Education Development of the Ministry of Education and Science of Georgia established and regularly implements Tracer Study of the Vocational Programs Graduates since 2014. The Study of the Students' Satisfaction with Vocational Education Institution was conducted for 2014 – 2015.

The studies revealed that the majority of the students polled is satisfied with the institution they took vocational education program with. Also, the vast majority (80% – 90%) of the polled students is satisfied with the vocational program (would choose the same vocation again). In spite of that, they are facing some challenges, most common of them being an employment issue.

In December, 2019 in the frames of the Work-Based Learning project a Tracer Study of the vocational education program graduates of 2018–2019 and 2019–2020 and Satisfaction Study of the Students of 2020 work-based learning (dual) programs in the field of agriculture were conducted with facilitation of the Georgian Farmers' Association.

One of the interesting findings of these studies was revealing the factors affecting applicants' decision to register for the vocational education program in the vocational education institution. Opportunities of learning an interesting vocation, gaining work experience while studying and deepening vocational knowledge were named as most important factors.

It is interesting to see how employers are evaluating the current state and how they are engaged in development of the work-based learning model. According to the conducted studies, namely, Employers' Attitude to the Vocational Education System, the majority of the polled employers have some information on the vocational institutions in Georgia though their only small portion (about 10-15%) ever had or now have employed vocational institution students or graduates in various fields. It is obvious that there is a significant discrepancy between students' and employers' ex-

pectations. As a result, there is quite a low demand for vocational education graduates on the labour market.

Reviewing literature available in this field and studying results of the surveys reveals that there are significant challenges overcoming of which would take a lot of effort from every interested party.

Work-based learning implementation mainly involves vocational education institution, student and employer.

The main institutions responsible for management and administration of the work-based learning model are the state (Ministry of Education and Science, National Center for Educational Quality Enhancement and respective agencies), private sector and civil society (non-governmental organizations, sectorial associations).

It is important that each party engaged in the process of setting up a successful model of the work-based learning has a good understanding of the essence of the work-based learning model and its goals and that all parties act in coordination.

1.2 INTERNATIONAL EXPERIENCE

Work-based learning is an important component of the vocational education. It implies getting theory knowledge in the educational institution along with going through teaching practice in the private sector. According to the ETF, work-based learning is a learning process that occurs when people do real-life work. This work can be paid or unpaid, but it must be real-life work that leads to the production of real goods and services. (ETF 2014). One of its forms is performing of the real-life work by an apprentice, producing real goods or services whether paid or unpaid. Work-based learning should be strictly distinguished from the models with teaching at the private sector training workshops or only in the classrooms.

This model of teaching is successfully practiced in Switzerland, Germany, Austria, Lichtenstein, etc. though the literature is available also from OECD countries. There are numerous cases where such systems are formally very weak in the developed countries, while in some developing countries as well as some middle income countries they are quite well represented.

Switzerland and Germany can be named as most successful cases with more than half of the country youth engaged in the apprenticeship systems. They are followed by Austria, Denmark, Norway and Netherlands with percentage of such youth being in the range of 25%-50%.



It is important to look at the cost-benefit analysis and productivity to assess how agribusinesses and apprentices can benefit from work-based learning system. Such assessment can have two dimensions: on the one hand, work performed by an apprentice and on the other hand, non-monetary benefit such as staff retraining tailored to the agribusiness specifics and demonstrating corporate social responsibility. Besides, cost and benefit assessment is defined by many factors such as place / region, duration of learning / apprenticeship, vocation specifics and size of agribusiness, initial level of apprentice's education and skills, time required for investment recouping and reaching break-even point, student dropout rate statistics and even rate of subsidizing / political support of such programs by the state and donor organizations.

There must be some incentives to get agribusinesses interested in this model. According to one of the recent studies, cost-benefit ratio is one of the most important factors inducing agribusinesses to engage in the processes. Similar apprenticeship systems will not always give similar results. Oftentimes, income at the end of the period is more important than that in the period of apprenticeship. Flexible but consistent training parameters are extremely important for making a successful model possible. Making apprentices payment flexible (as opposed to the fixed payment of GEL 120 in Georgia) would create a healthy environment on the market. Considering benefits an apprentice would get is important for setting up a viable system. Quality of the training/retraining and field of application reduces the costs to a certain level and facilitates income growth linked with improved education.

The European Training Fund (ETF) conducted a survey in Georgia in 2019 in the frames of international support with the purpose of developing and piloting a formal generic methodology for assessing costs and benefits of the work based learning. This methodology is intended for providing support to the ETF as well as to the state and private sector. According to the survey, the field works implemented in Georgia revealed that there is no data of apprentice productivity available in Georgia and small agribusinesses find it difficult to assess costs associated with hiring an apprentice. The survey showed that as there is no minimum wage defined in Georgia and as small businesses are constrained in finances, some agribusinesses came up with alternative way of paying the apprentices. For instance, the beekeepers paid the apprentices with beehives (3 pcs). In some cases, payment was made with harvested fruits and vegetables.

1.3 PURPOSE OF ASSESSMENT

The goal of the study is to analyze costs and benefits of the work-based learning in the agriculture. In particular, to analyze costs and benefits of having an apprentice for the businesses engaged in the work-based learning model.

In the frames of the study cost and benefit analyses of the businesses engaged in the implementation of dual programmes was performed on the general as well as on the sectorial levels. The costs and benefits of engaging students in the teaching practice by the private sector were assessed. The study methodology was based on the international experience, including on the methodology suggested by ETF, with adjustments to the local specifics. It should be noted though that getting costs and benefits data from agribusinesses turned out to be quite cumbersome.

In the course of the study private sector representatives of the companies that provided/provide teaching practice for the students (from the fields of beekeeping, gardening, fruit growing, fishery, veterinary, meat processing, etc.) were interviewed. Expenses made by the agribusiness for each student were identified. They were compared to the benefits a business gets by employing a student. The recommendations were developed basing on this information for improving this model and for creating additional incentives for the private sector in order to reach sustainability of this model.

The study gives answers to the following questions:

- What are the costs and benefits of employing one student on a teaching practice (by sectors/subsectors)?
- How students' work is assessed by the employers? Do the students have appropriate knowledge gained in the colleges before starting teaching practice?
- What is experience with similar models in the world (basing on the good practice, including Swiss and German practice)?
- What incentives are there and what can be offered mainly to the agribusinesses, also to the students and to the educational institutions?

1.4 STUDY LIMITATIONS

In the frames of the study it was planned to interview all agribusinesses engaged in the work-based learning model. For this, we requested available data from the educational institutions. We faced a problem with databases, in particular, data on training enterprises, programs, students, etc. For instance, outdated contact information, enrollment and graduation dates, etc. Also, obtaining program monitoring results and checking teaching quality turned out to be complicated. Besides, many training enterprises were not carrying out their function in the program (considering 2020 autumn enrollment and a factor of seasons in agriculture, they did not have students yet, mainly due to the COVID 19 pandemic).

As for agribusinesses, lack of information on the model details from the private sector (training enterprises) engaged in the work-based learning process became apparent along with their inactivity in development of the programs. We should mention problems with transportation and communication in the course of program implementation as well as in the course of study conducting due to pandemic. The enterprises were interviewed by phone that complicated data collection. As for the questionnaire (Annex 1) and duration of the interview, the private sector was not quite willing to participate and allocate time.

Although, at the end of the day, the interviews helped us to assess costs and benefits agribusinesses had for engaging in the work-based model, but in reality costs and benefits evidence base to see the whole picture is still limited (obtaining data for several years is even more difficult). The reason is that some agribusinesses (especially small size primary producers) do not do bookkeeping or do not wish to provide information.

2. METHODOLOGY

The methodology of the study is based on the methodology suggested by the ETF. The study comprises office as well as field study. The sources of information comprise learning from local and international experience and literature, observation and interviews. In August – December 2020 phone interviews were conducted with the field experts and representatives of the colleges and agribusinesses (training enterprises).

We explained the study purpose to the respondents – identifying and analyzing costs and benefits of the businesses engaged in dual program(s) implemented with work-based learning approach in which more than 50% of the learning outcomes should be reached in the real working setting, at the stage of education program implementation.

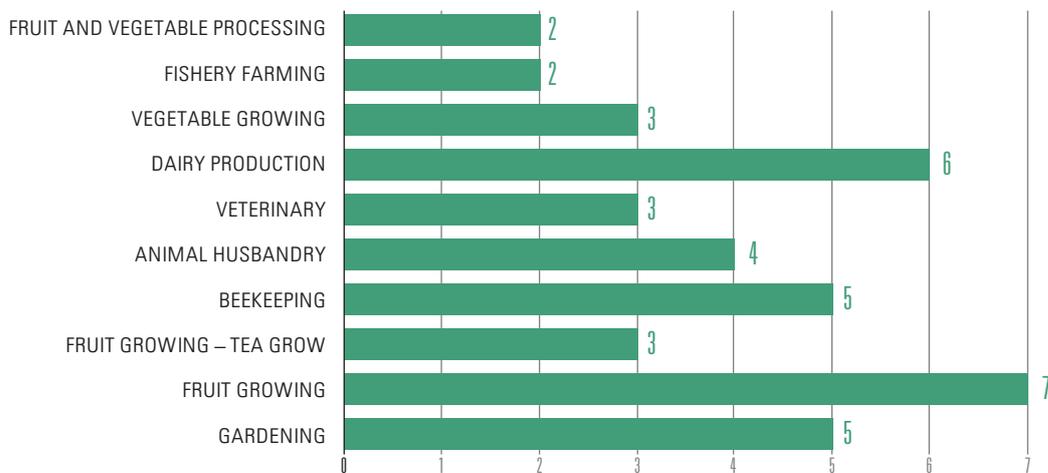
We developed a special questionnaire (Annex 1) with ETF methodology for assessing costs and benefits of piloting of the dual teaching process. The results of the gathered information, analysis and main findings are reflected in the Results, Conclusions and Recommendations part.

3. RESULTS

Representatives of 35 companies were interviewed with preliminarily developed questionnaire. Out of them one company is a LEPL, one company is a copartnership, one company is a social enterprise, four companies are NNLE-s, four companies are registered as cooperatives, five have a physical person status and 19 companies are Ltd.-s. Some of them are engaged in more than one program.

As for business area of the companies engaged in the work-based learning, the majority are in fruit growing, dairy production, beekeeping and gardening. The least businesses operate in the fruit and vegetable processing and fishery.

FIGURE 1. AGRIBUSINESSES ENGAGED IN THE WORK-BASED LEARNING BY PROGRAMS



Altogether, 8 colleges (including branches) in 11 locations were engaged in the work-based learning model covering 8 regions: Samegrelo (1 University, 2 branches), Samtskhe-Javakheti, Ajara, Imereti, Racha-Lechkhumi, Mtskheta-Mtianeti (1 college, 2 branches), Shida Kartli and Kakheti (1 college, 3 branches).

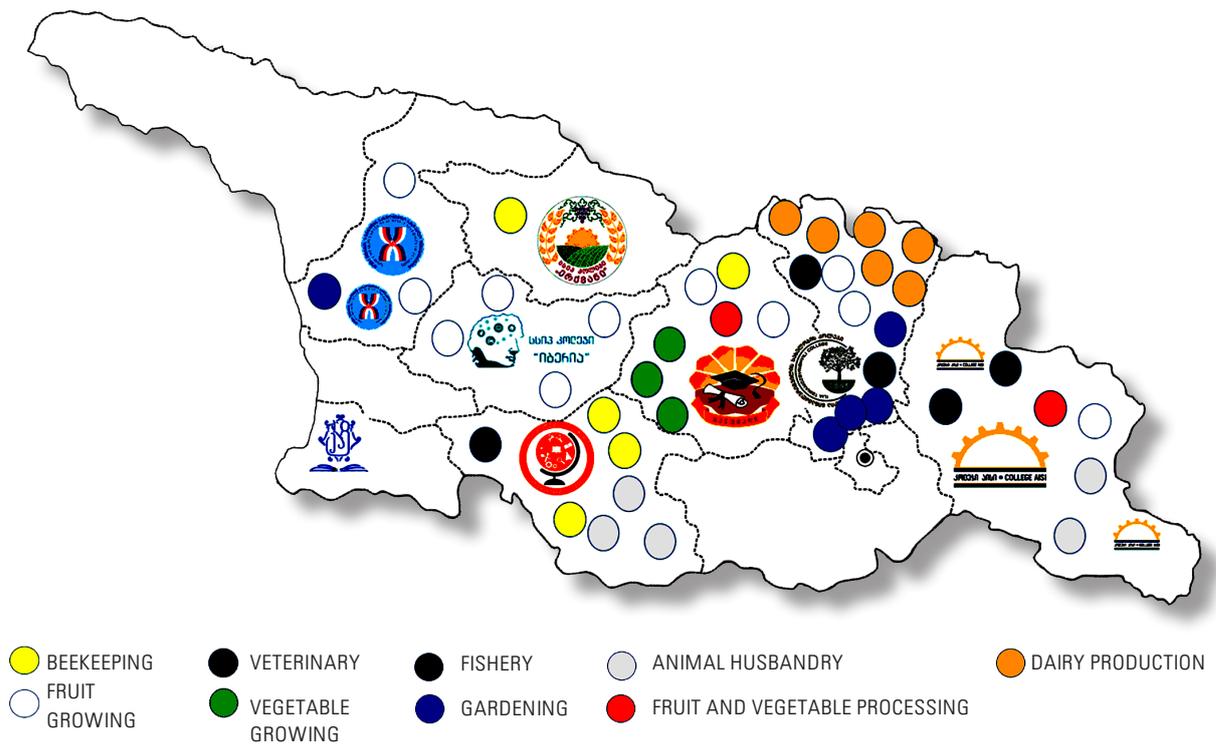
As of beginning of 2021, the program operates in 6 regions (not in Ajara and Racha-Lechkhumi). The agribusinesses engaged are mainly from the same regions with educational institutions but in some cases (for instance, Tsinamdzghvriantkari college) agribusiness is represented as a training enterprise

in Tbilisi as well. In spite of abundance of the agribusinesses engaged in the program, more than 1/3 of them has not taken on an apprentice. The global pandemic is named as one of the reasons for this.

For a better visibility, engagement of the colleges and agribusinesses is presented on the map below (figure 2).

FIGURE 2. MAP WITH COLLEGES AND AGRIBUSINESSES ENGAGED IN WBL

VOCATIONAL INSTITUTIONS AND COMPANIES ENGAGED IN THE WBL (DUAL) PROGRAMS



* **Comment:** tea growing is a subarea of the fruit growing

It was revealed that an owner and an instructor in the agribusinesses engaged in the dual program is the same person. The reason for this is that they are small businesses / farmers and some of them hire people only by seasons.

3.1 CBA BY AREAS

Due to the diversity of agriculture, it is important to do cost and benefit analysis by the areas the students are trained in. It should be noted that the analysis was not done by all areas as some of them were started in 2020 and due to the pandemic there were no students enrolled.

It should be noted that costs and benefits of the agribusinesses engaged in the work-based learning often differ by the size of the businesses. Hence, the analysis is given below in two parts: for small and large agribusinesses.

3.1.1 Beekeeping

Interviewing five beekeepers engaged in the work-based learning model revealed that they rarely have permanent employees. They need skilled helpers only on seasons of nomadic movements or extracting honey. The apprentice works on average 3 – 4 days a week, 2-5 hours a day (she/he rarely has to work in winter). Accordingly, non-working season is for learning theory part in the educational institution.

Some beekeepers pay the apprentices in kind (with beehives), some pay money (around GEL 120 per month) but as apprentices work by seasons and part-time they make around GEL 1000 a year. The beekeepers/instructors find it difficult to specify additional expenses linked with teaching an apprentice. Transportation, equipment and food expenses are some of them and they make up around GEL 270 a year.

Beekeepers pay GEL 500 – GEL 600 a month to more or less skilled employees working full time and GEL 300 – GEL 400 for working part-time. As apprentices study more and work less, their wage makes up to 40% of the skilled employee's wage and 100% of it the next year (while their monthly wage was GEL 120 for part-time work). Other expenses linked with employing an apprentice are added and make up to GEL 30 a month. Thus, in total, including taxes, it costs a beekeeper GEL 150 to employ an apprentice.

Besides, employing an apprentice takes time that can be considered as an alternative cost.

It should be noted that several apprentices completed the beekeeping course. Some of them started their own beekeeping business. In 2018 -2020 17 apprentices completed teaching practice with 5 beekeepers. Over this period of time 4 apprentices quit practice with 2 beekeepers – 3 went abroad and one 1 to the army.

As for comparing apprentice work with unskilled labour, the beekeepers say that apprentices are better than unskilled labour as they study theory of beekeeping from November to March in the first and in the second year of the two-year program. From April to October they master practice and can very soon outperform unskilled labour. Although, it should be mentioned that the bee-

keepers do not need unskilled labour as a helper must have at least some minimal knowledge of beekeeping to get employed. When analyzing benefits, the majority of beekeepers said that they received uniforms from the Georgian Farmers’ Association. Some beekeepers teach in the colleges and benefit by being paid salaries there.

It should be noted that out of 5 apiaries (bee yards) studied 4 are relatively small (100-200 beehives), 1 apiary is relatively large with 400-500 beehives. This apiary also has a bee products processing line. The study showed a difference in costs and benefits of small and large apiaries. For instance, the large apiary gives an apprentice a bigger workload and engages him/her in various activities (caring for bees, honey extraction, packaging and selling) and in spite of the fact that large apiaries spend more time training the apprentice than small apiaries they get more benefit, for instance, by exercising corporate responsibility (they do not see material benefit though the study showed that net benefit is positive in the first and in the second years). Please, find below a table summarizing our findings for one student:

FIGURE 3. COSTS AND BENEFIT OF BEEKEEPERS CALCULATED FOR ONE APPRENTICE

SIZE	YEAR 1		YEAR 2	
	SMALL	LARGE	SMALL	LARGE
Cost (GEL)	1822.50	2475.00	1350.00	1825.00
Benefit (GEL)	1668.00	3100.00	3720.00	7300.00
Net benefit (GEL)	-154.50	625.00	2370.00	5475.00

NONFINANCIAL BENEFITS

In the course of engaging in the work-based learning model the apprentices’ labour outperforms unskilled labour.

Company employees get hired in the vocational colleges as teachers and are paid salaries there.

Equipment received from the Georgian Farmers’ Association in the frames of the project.

As we see from the table above, the small agribusinesses/farms have a negative net income (GEL -154.50) in the first year and a positive net income in the second year (GEL 2,370). As for the large agribusinesses, its net income in the very first year is positive (GEL 625) as well as in the second year (GEL 5,475).

The beekeepers generally are satisfied with the knowledge apprentices get in the colleges though they say that it would be better if students are taught up-to-date technologies and if they bring with them innovations into the traditional farms. This does not happen nowadays. Some beekeepers attempted to hire good students but they preferred to start their own apiaries.

It should be noted that some beekeepers do not see any benefit in participating in this program and are going to leave it. Some of them are happy to teach the youth and thus serve their country.

The beekeepers suggested several tools for motivating beekeepers and encouraging them to take on and teach more apprentices. Some of them are: participation of the beekeepers in the exchange tours abroad, getting additional payment for the time they spend teaching apprentices, giving preference to the entrepreneurs participating in the work-based learning programs in grant and other financial assistance programs.

Thus, in spite of the fact that in the second year of employing an apprentice the net benefit is positive, the program should be improved to increase its sustainability and to motivate agribusinesses/farms and apprentices better.

3.12 Fruit growing

The interviews were conducted with 7 agribusinesses that are primary products producer farmers and service providing agribusinesses, governmental and non-governmental organizations and scientific research center.

The agribusinesses stated that their motivation for engaging in the program was selecting and training staff that they would later retain in the company. Some of them said that would be good to have short-term training/retraining programs as the apprentices can gain skills equal to the skills of 60%-70% of the skilled workers over one year instead of two. Also, they mentioned that it would be desirable to add specific areas such as greenhouse specialist, hazelnut specialist, laurel growing specialist, etc.

As for the costs and benefits, above general minor costs there is a cost of apprentice pay that is on average GEL 150 (including taxes). The agribusiness representatives noted that they can not make apprentices responsible for anything and can not demand from them the same work as from the ordinary employees as they are not actual employees although the agreement made between agribusiness and apprentice implies that. The problem is that agribusinesses as well as apprentices have perception that the apprentices are there not for work but only for observation.

One of the benefits agribusinesses get is the information spread by word of mouth in the apprentices' towns and villages. For instance, for company Kartlisi one of the remarkable acknowledgments and a nice benefit was winning and getting awarded on the Farmers' Day in the nomination Responsible Enterprise.

Please, find below summarized net benefits by years and agribusiness size

FIGURE 4. COSTS AND BENEFITS OF FRUIT GROWERS CALCULATED FOR ONE APPRENTICE

SIZE	YEAR 1		YEAR 2	
	SMALL	LARGE	SMALL	LARGE
Cost (GEL)	1575.00	1960.00	1400.00	1800.00
Benefit (GEL)	1620.00	2240.00	4200.00	6980.00
Net benefit (GEL)	45.00	280.00	2800.00	5180.00

NON-FINANCIAL BENEFITS

Hiring qualified apprentice that might become a company employee through engaging in the work-based model.

Raising agriculture company visibility and reputation through spreading information on its activities by the apprentice.

As the table shows, in case of small agribusinesses costs slightly exceed benefits, thus small agribusinesses complete the first year without positive net benefit, but the next year when the apprentice is qualified and some expenses decrease, the net benefit is larger and equals to GEL 280. The next year when the apprentice is quite qualified and work performed by him/her reaches 80% of the work performed by the skilled worker, the income is correspondingly larger and makes up to GEL 5,000.

Basing on this analysis, we can suggest that in the regions with developed fruit growing implementing dual programs would be much more reasonable for the apprentices as well as for the agribusinesses, especially in the businesses of industrial scale. In the large agribusinesses the apprentices have much better chances of getting employed there than there are chances in case of the small farms.

3.1.3 Gardening

The interviews were conducted with 5 gardening businesses engaged in the dual teaching process. We can split these businesses into following categories:

- Small and medium: area 1-3 hectares
- Large: area 26 hectares

By this indicator 2 out of 5 agribusinesses were relatively large and the other three were small or medium sized businesses.

The majority of the gardening businesses engaged need to hire help only on seasons for carrying out field works. The exception is the botanical garden implementing various works throughout the year and thus having permanent employees.

The apprentices work on average 3-4 days a week, 3 hours a day in farms and agribusinesses. They are paid GEL 120 a month on average. Out of the businesses interviewed 2 were farms that did not pay the apprentices (not even in kind). In some cases, the businesses had to pay above apprentices' fixed scholarships for their transportation (when needed), meals and tools for the field works— in total about GEL 20. Thus, the business pays GEL 140 per month in total for one apprentice. Besides, the costs include time spent by the instructor for teaching the apprentice.

The skilled worker's monthly salary when working part-time is about GEL 400 and when working full-time is about GEL 800. The agribusiness representative has to spend his/her time in case of hiring the skilled worker as well, especially initially. The study showed that large agribusinesses perform various works throughout the year, actually without stopping while small agribusinesses

perform one specific work over shorter period of time. Because of this large businesses spend more resources for training and retraining new employees.

It is more beneficial for the agribusiness to hire vocational college student than skilled workers. The apprentices have theoretical knowledge required for the agribusiness operation and they gain practical skills on the job. The apprentice payment is much less than that of the skilled worker. Consequently, the business gets required labour with lower financial expenses.

The agribusinesses found it difficult to define a period it takes apprentice to gain knowledge and skills comparable to that of the skilled worker. It depends on the apprentice's motivation, diligence and work specifics though roughly it was estimated as from 6 months to 1 year. The apprentice has to gain theoretical knowledge in the college and then practice it in the real setting. The first year his/her work makes up to the 40% of the skilled labour's work and the next year it reaches its 100%.

In total, 60% of the interviewed agribusinesses (3 agriculture businesses) are satisfied with engaging into the work-based learning model and see it as beneficial for their businesses. It should be noted that employees of one of the businesses (botanical garden) are working as teachers in the institution implementing vocational programs. This encourages their engagement in the program and willingness to take on new apprentices. This agribusiness already hired 4 former apprentices. Hiring of some more apprentices is planned.

It became apparent that main benefit for the agribusinesses is an opportunity of hiring cheap workforce with theoretical knowledge, increasing company visibility on the local market and an opportunity to network.

As to the remaining 40% (2 agribusinesses), they are not satisfied, can not see any benefit in the work-based learning model and are going to leave it. The key reason for this is that both are small size greenhouses that require help only on seasons.

The motivation for the gardening businesses to stay as partners is participation in the study visits locally as well internationally. The agribusinesses express their willingness to deepen their knowledge of theory and practice and improve their skills.

FIGURE 5. COSTS AND BENEFIT OF THE GARDENING BUSINESSES CALCULATED FOR ONE APPRENTICE

SIZE	YEAR 1		YEAR 2	
	SMALL	LARGE	SMALL	LARGE
Cost (GEL)	1620.00	2650.00	1260.00	1850.00
Benefit (GEL)	1812.00	3600.00	4080.00	8550.00
Net benefit (GEL)	192.00	950.00	2820.00	6700.00

NON-FINANCIAL BENEFIT

The agribusiness (botanical garden) employees work as teachers in the institution implementing vocational programs.

Raising company visibility on the local market and opportunity of networking.

As the table shows, large enterprises have more costs in the first year than in the second year. As for the benefit, it is much bigger in the second year than in the first year. In total, large business costs in the first year are 63% more and in the second year 46% more than that of small businesses. The reason for this is that large businesses spend more time, financial and other alternative resources on apprentices than small businesses and their benefit is much bigger.

The conducted study made it clear that hiring vocational college students is much more beneficial for the middle-size and large size farms and agribusinesses planning expansion. The small-size companies need help only by seasons and do not see any benefit in engaging in the program.

Besides, area of business and season are also important. It is much more efficient to hire apprentices for the businesses actively working throughout the year: field works (land cultivation, agrotechnical measures, pruning, harvesting), providing consulting services, selling products, etc.

3.14 Veterinary

3 agribusinesses in the field of veterinary were interviewed, out of them 1 is a regional association in Samtskhe-Javakheti and 2 are veterinary clinics in Tbilisi (the college is located in Mtskheta-Mtianeti region)

The program was implemented in the Samtskhe-Javakheti region in 2018–2019. There were 6 apprentices participating (in 2020 the agribusiness did not have vocational college students). With veterinary association assistance, the apprentices had a teaching practice in various farms. Their work comprised helping with milking, checking animals, medical treatment, assisting labour, producing forage, etc. They worked 3 days a week on average with 6 hours of teaching practice per day (in some cases 10–12 hours per day in summer). In general, 60%–70% of the apprentices' time was spent practicing with agribusiness and 30% – 40% was dedicated to the theory teaching in the college.

As for the agribusiness costs that emerged as a result of participation in the dual program, as the association was the medium and the apprentices had a teaching practice in the farms, the costs can be split accordingly: the association was not paying the apprentices as the students were paid college scholarships. Besides, the colleges provided for miscellaneous needs such as uniforms, etc. Other expenses included transporting students to the farms, GEL 15 for each visit (2–3 visits per week). In some cases overnight stay of the students was provided.

Each farm in which apprentices had a teaching practice had to arrange facilities such as locker room, first aid box, taps, disinfectants, uniforms, shoe protectors, etc. It cost the farms GEL 200 – GEL 250 on average. In some cases, the farmers provided meals as well. For the farms arranged by legal standards there were no expenses to be made.

As for the benefit of the agribusiness, it should be noted that the association has signed memorandum of understanding with the college basing on which it has a right to use its mobile veterinary clinic for teaching purpose. Besides, in case of this training enterprise the advantage is that association member veterinarians and veterinary technicians continue cooperating with agribusinesses engaged in the dual program, the visibility of the association has been increased in the region, more people learned about its activities and association member veterinarians benefitted.

It was beneficial for the farmers that provided farms for the apprentice practice as the unskilled workers were paid GEL 25 per day and their duties included, for instance, harvesting beetroots, cutting and bailing hay, feeding animals, etc. The apprentices participated in these works. The skilled workers are required to have farm arrangement skills, skills for planning forage producing and storing, etc.

By and large, agribusiness representatives think that dual approach is good but the small farmers do not need qualified workers.

All six students completed the program successfully. One of them was the association employee (unskilled). After graduation his salary was raised. The rest of them are self-employed. One of them had 10 cows before starting studying and now he has 50 cows.

In the future, the incentive for the agribusiness participation in the work-based learning would be advantage given to the businesses in the grant projects.

As for two veterinary clinics in Tbilisi, there were two key reasons for participation identified. The first reason for the agribusinesses was finding additional employees as qualified staff in the field of veterinary is quite scarce especially for the city of Tbilisi size where having cats and dogs as pets is common. The second reason the agribusinesses had for engaging in the program was having general social responsibility and spreading information on their businesses in the regions to reach their potential apprentices.

According to one representative of the agribusiness they are in need of qualified staff (ultrasound specialist, radiologist, etc.). The agribusiness has equipment and can not use it due to not having staff. The apprentice can not do this work unless there is a qualified worker able to teach him/her. Because of this, the clients are sent to other client/competitor agribusinesses. The agribusiness is ready to take on more apprentices if more space is available. By now, one apprentice has been hired, the other either started their business or got employed elsewhere.

The other agribusiness representative stated that when engaging in the program he thought that he would hire new employees but the apprentices turned out to be from Mtskheta-Mtianeti region villages and not from Tbilisi and he can not open a branch of his business there. When he learned that the apprentices are not from Tbilisi he thought that they would spread the information on his business in their villages or municipality. Eventually, the students turned out to be already employed, they know what they are doing and they just needed diplomas. As apprentices do not live in close proximity (they live in Tianeti, etc.) he was disappointed.

Regarding agribusiness costs: first of all, both agribusinesses stated that the apprentices need to be given time by the employees. Neither of the businesses pays scholarship. One agribusiness representative says that meals, coffee, fruits, chocolate, cookies, etc. are always available and anybody can have them. In both agribusinesses the apprentices work 2-3 hours a week. The diligent student gets a good knowledge in timespan of 6 months to 1 year.

According to the agribusinesses, engaging in this program is difficult for a small company as dealing with apprentices takes a lot of instructors' time. One of the agribusiness representatives said

that it takes a lot of his time and he thinks to leave the program from the next year. Besides, one more problem is that a student is not allowed to work as a veterinarian and can work only as an assistant.

FIGURE 6. COST AND BENEFIT OF THE VETERINARY CALCULATED FOR ONE APPRENTICE

SIZE	YEAR 1		YEAR 2	
	SMALL	LARGE	SMALL	LARGE
Cost (GEL)	2436.00	3525.00	2220.00	3000.00
Benefit (GEL)	1821.00	3700.00	4062.00	6100.00
Net benefit (GEL)	-615.00	175.00	1842.00	3100.00

NON-FINANCIAL BENEFIT

The business has a right to use a mobile veterinary clinic for the teaching purposes in the frames of memorandum of understanding made between the company and vocational college.

Association member veterinarians and veterinary technicians network and cooperate with the agribusinesses engaged in the dual program through engaging in the work-based learning model.

Raising visibility of the association in the regions that significantly increases interest to its activities and services.

Finding additional employees as there is a shortage of the qualified personnel in the field of veterinary.

As we can see from the table, considering the fact that small agribusinesses either do not pay apprentices or pay them on hand and that instructor has to spend much time, the net benefit is negative in the first year but in the second year when the apprentice gets skilled, can perform more work and less time is spent for him/her, the net benefit is positive.

In case of large agribusinesses, less time is spent for the apprentices as there is a well coordinated and functioning system in place. These businesses pay taxes and have more expenses. On the other hand, total financial income of the large agribusinesses as well as benefit to their corporate

social responsibility exceeds those of the small businesses. Thus, net income is positive for both years.

3.1.5 Fishery

The fishery program is available in the Kvemo Alvani branch of the Aisi college. 2 agribusinesses are engaged in the program as training enterprises (Karavani Ltd. and Tobi Ltd.)

These both businesses were interviewed. In their opinion, the apprentices perform all key activities required for the production process within one year from starting studying. The agribusiness representatives said that a diligent student can master key activities in one month.

The agribusiness expenses include buying tools, jumpsuits, etc. 2 sets of jumpsuits are required per year for a full cycle, each costs GEL 200, also 2-3 raincoats are needed per year, each costs around GEL 30. In total, equipping one employee as well as one apprentice costs around GEL 500.

The benefit agribusinesses get from the work-based model is the work performed by the apprentices that is cheaper than work performed by the skilled and seasonal workers. Besides, the agribusiness representatives think that knowledge and experience gained there by the apprentices will make starting work easier for them.

FIGURE 7. COSTS AND BENEFITS OF THE FISHERY CALCULATED FOR ONE APPRENTICE

SIZE	YEAR 1		YEAR 2	
	SMALL	LARGE	SMALL	LARGE
Cost (GEL)	2120.00	2675.00	1895.00	2025.00
Benefit (GEL)	2800.00	3800.00	5300.00	7300.00
Net benefit (GEL)	680.00	1125.00	3405.00	5275.00

The tables shows that engaging in the program is beneficial for the large and small businesses in both years. The reason for that might be the fact that an apprentice masters working in this field soon and within one year catches up with the skilled worker. Besides, other expenses are the same for the skilled worker and for the apprentice (for instance, outfit).

3.1.6 Fruit and Vegetable Processing

In case of 2 agribusinesses interviewed the expenses made by them for participation in the program were not identified. The agribusinesses engaged in the program with their employees and the key incentive for them is fulfilling requirement of various quality management systems (such as HACCP and ISO 9001 and 22000) for permanent training-retraining of the staff. Absolutely all employees have to be retrained in this type of businesses. Therefore, engagement in this kind of programs and ensuring permanent training is interesting and necessary for such agribusinesses.

FIGURE 8. COST AND BENEFIT OF THE FRUIT AND VEGETABLE PROCESSING CALCULATED FOR ONE APPRENTICE

SIZE	YEAR 1		YEAR 2	
	SMALL	LARGE	SMALL	LARGE
Cost (GEL)	1680.00	2016.00	1470.00	1696.00
Benefit (GEL)	2052.00	3360.00	3366.00	5740.00
Net benefit (GEL)	372.00	1344.00	1896.00	4044.00

NON-FINANCIAL BENEFIT

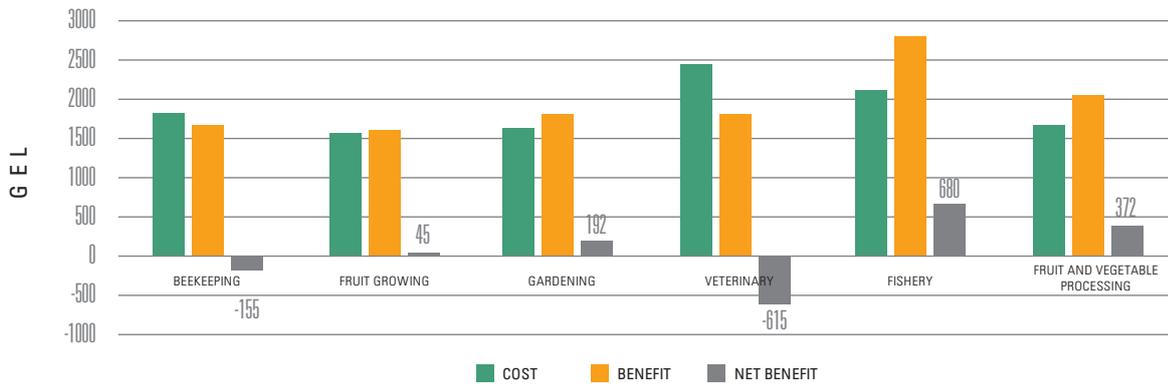
Engaging agribusiness staff in the work-based learning model and by this getting opportunity of their training-retraining.

The table shows that engaging in the work-based learning program is beneficial for small as well as large agribusinesses but in case of large agribusinesses the benefit far exceeds that of the small agribusinesses' benefit.

3.1.7. Summarizing Results

Let us summarize the results with diagrams given below. We have split the analysis into two components similarly with the sectorial analysis: benefit of the large and small agribusinesses in the first and in the second year.

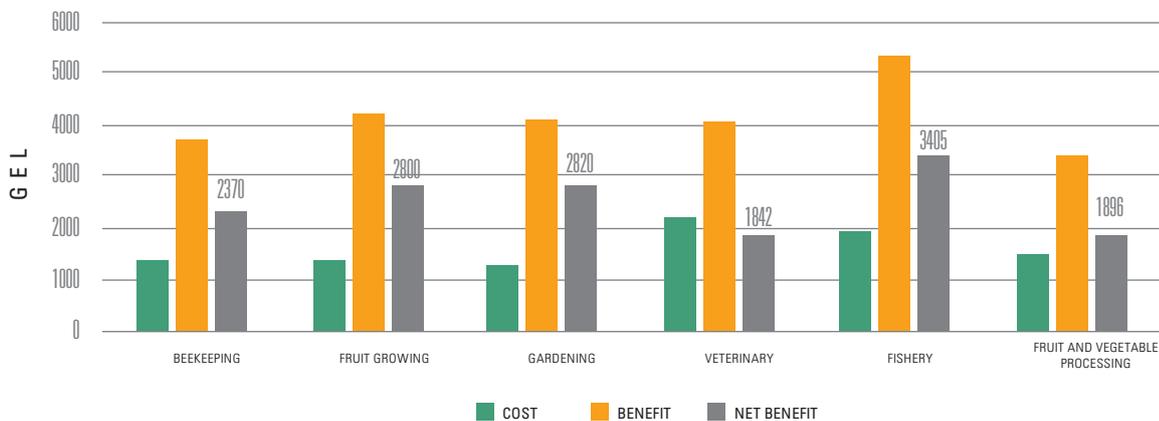
FIGURE 9. COSTS AND BENEFITS OF THE SMALL AGRIBUSINESSES FOR THE FIRST YEAR BY FIELDS



In case of the small agribusiness the fishery gets most benefit (680) and the veterinary has the lowest cost (-615). It should be noted that net benefit in beekeeping in the first year is negative. In other fields the net benefit is positive that fluctuates in the range of GEL 45 – GEL 372 in the first year of the apprentice employment.

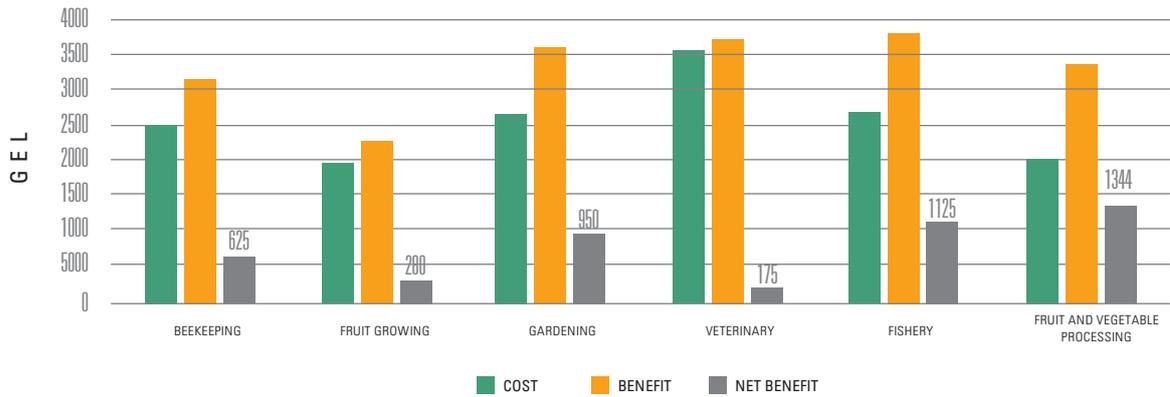
In the second year of the apprentice employment in the small agribusinesses his/her productivity increases. Thus, in the second year the net benefit is positive in all fields and is in the range of GEL 1842 (veterinary) to GEL 3405 (fishery).

FIGURE 10. COSTS AND BENEFITS OF THE SMALL AGRIBUSINESSES THE IN SECOND YEAR BY THE FIELDS



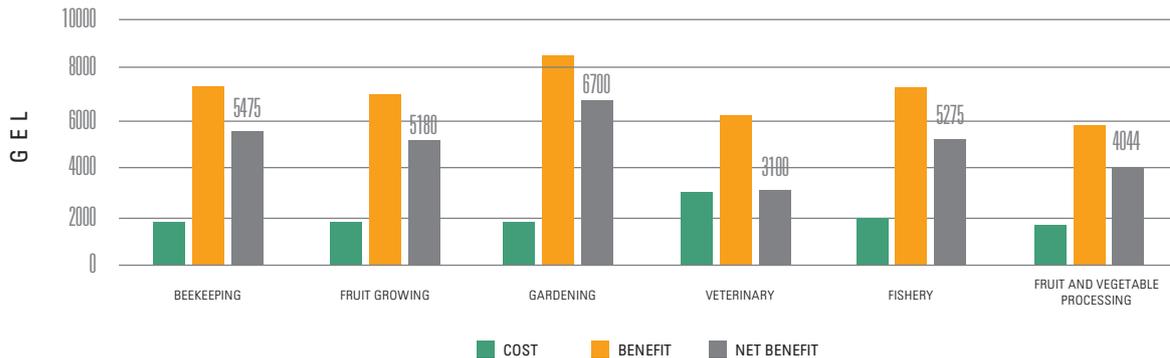
In case of larger agribusinesses the net benefit is positive in the first year in all fields and it exceeds the net benefit of the small agribusinesses.

FIGURE 11. COSTS AND BENEFITS OF THE LARGE AGRIBUSINESSES IN THE FIRST YEAR BY THE FIELDS



As for having apprentices by the large businesses, it is beneficial in the second year. The benefit is in the range of GEL 3100 (veterinary) to GEL 6700 (gardening). In such case the agribusinesses can motivate their instructors and apprentices by paying bonuses.

FIGURE 12. COSTS AND BENEFIT OF THE LARGE AGRIBUSINESSES IN THE SECOND YEAR BY FIELDS



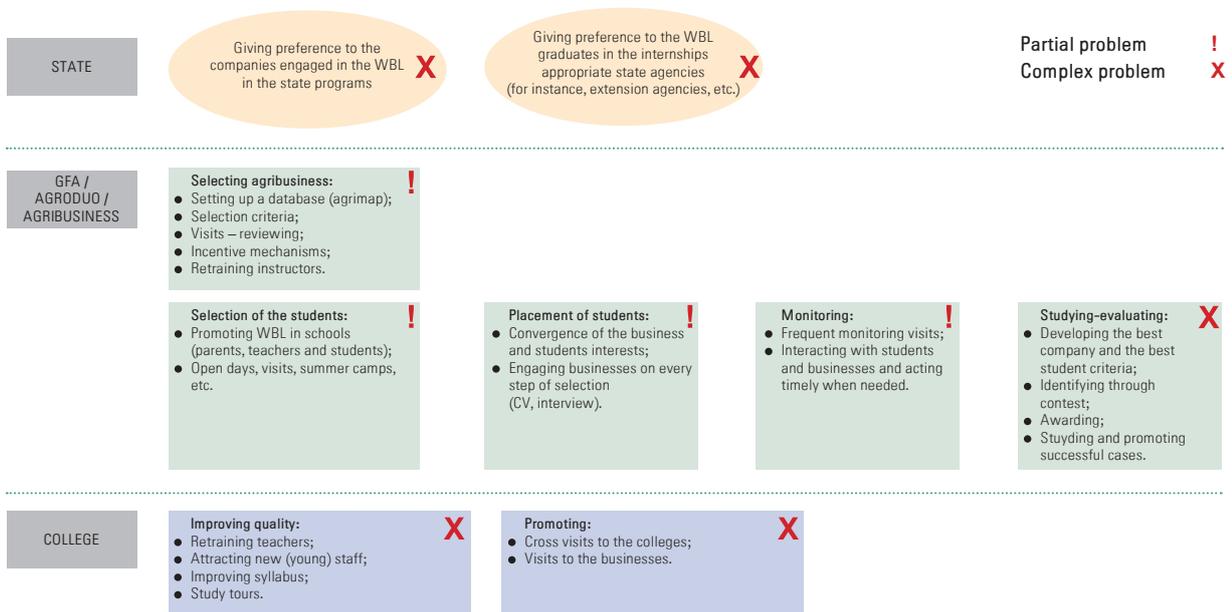
In spite of the fact that in most cases the benefits of accepting an apprentice exceeds its costs these data differ by each agribusiness and apprentice. It should be noted that above financial benefit there are some non-financial issues that quite often cause agribusinesses' frustration and demotivates them from engaging in the work-based model. These are paperwork, the need for participation in various meetings and seminars, quality and of the apprentice education and their motivation, transportation of the apprentices and other similar issues consuming time and resources that reduces potential benefit of the work based model in the eyes of agribusiness. This endangers sustainability of this model. Due to this, please find below recommendations developed for increasing sustainability of the work based learning model.

4. CONCLUSIONS AND GENERAL RECOMMENDATIONS

In order for the work based learning to be sustainable and successful it is vital that all participants of the process have a clear vision of their rights and responsibilities. The agribusiness should see its role in the work based learning model implementation and potential benefit this model provides (material as well as non-material). As the work based learning model is multifaceted and complex the benefit and success of the agribusinesses engaged in it are determined by many components.

Please, see in the diagram below all important issues comprised by the system. The recommendations are presented for each component. Some part of them is fulfilled partially and some part of them is not. Therefore, partial problems are marked with (!) and complex problems are marked with (X).

FIGURE 13. GENERAL DIAGRAM, CHALLENGES AND RECOMMENDATIONS OF THE WORK BASED LEARNING SYSTEM



4.1. AGRIBUSINESS SELECTION PROCESS

Initially selection and inclusion of the agribusinesses is done with the coordination of the Georgian Farmers’ Association and by the representative of the educational institution. When inclusion of the

agribusiness is done by using connections and not basing on the real needs, the expectations and results do not coincide that leads to the disappointment of the agribusiness and of the other parties while for the agribusinesses that are well aware of the significance of the work based learning the result is much better. Such businesses say that their reasons for engaging in the work based learning model are the need for the new personnel, developing/expanding of the agribusiness. They really need vocational college students/graduates that have theoretical knowledge in their field. The practice component can be performed in their enterprise. In the frames of this study Kartlisi can be named as one of such businesses. It retained and hired many students engaged in the work based learning model.

It should be noted that the agreement made between an agribusiness and an apprentice stipulates that an apprentice can be employed as a regular employee and implement agriculture works though agribusinesses as well as students perceive the apprenticeship as way of observing the work processes and not of working.

4.2. AGRIBUSINESS SIZE

Engaging in the work based learning model mostly is not effective for the small farms and agribusinesses. They really need hiring seasonal workers and this can be achieved in their villages. The middle-size and large agribusinesses that are striving to expand and permanently need to find new employees see a benefit in engaging in this process.

The company Kartlisi is among the large interviewed agribusinesses having branches in various regions of Georgia. One of the students that gained theoretical knowledge in the Shota Meskhia Teaching University through dual approach and had a practice training in the company Kartlisi got successfully employed as a consultant for one of the large agribusinesses. The mentioned agribusiness hired all seven students of the fruit growing program upon completion of the program.

It should be noted that the majority of agribusinesses in the country are small sized. Because of this, their engagement in the work based learning is important. Consequently, it is desirable that business promotion measures tailored to the small business are offered.

4.3. COMMUNICATION BETWEEN EDUCATIONAL INSTITUTION AND AGRIBUSINESS

It is very important that there is a close interaction and process monitoring between vocational institution and agribusiness when required. The challenges that sometimes arise between agribusiness and apprentice negatively affect implementation of the teaching practice. Thereby, the institution should have a monitoring arranged to evaluate regularly agribusiness and students satisfaction and timely solve the problems when needed.

5. SPECIFIC RECOMMENDATIONS

Please, find below a table with key challenges of the work based learning model and specific recommendations developed for overcoming them. Also, responsible authorities / organizations are indicated

CHALLENGE	RECOMMENDATION	RESPONSIBLE PARTY
Right selection of the agribusinesses	<ul style="list-style-type: none"> Setting up the agribusiness database with key players of agrifood field identified. 	<ul style="list-style-type: none"> GFA / Agro Duo college
	<ul style="list-style-type: none"> Selecting agribusinesses basing on the developed criteria (for instance, preference to be given to the large and strong agribusinesses). 	<ul style="list-style-type: none"> GFA / Agro Duo College
	<ul style="list-style-type: none"> It is advisable to visit and review the selected agribusinesses initially and discuss the benefits of the work based learning model with agribusiness management 	<ul style="list-style-type: none"> GFA / Agro Duo College
	<ul style="list-style-type: none"> Additional incentives should be developed for attracting agribusinesses (for instance, giving preference to the agribusinesses engaged in the work based learning in the grant projects). It is advisable that these incentives are customized for small and large agribusinesses. 	<ul style="list-style-type: none"> The state Donor
	<ul style="list-style-type: none"> Retraining and motivating instructors in the agribusinesses 	<ul style="list-style-type: none"> GFA / Agro Duo College Business

CHALLENGE	RECOMMENDATION	RESPONSIBLE PARTY
Selection of the students	<ul style="list-style-type: none"> ■ Promoting work based learning model in schools; working with parents, teachers and students. □ Open Days in the colleges and agribusinesses, visits, summer camps and similar activities. 	<ul style="list-style-type: none"> ■ College ■ The state
	<ul style="list-style-type: none"> ■ Giving priority to the work based learning graduates (employment forums, internships and employment in the state agencies, etc.). 	<ul style="list-style-type: none"> ■ The state ■ College ■ GFA / Agro Duo
Placement of the students	<ul style="list-style-type: none"> ■ Engaging agribusinesses on every stage of selection (CV, interview, visit to the agribusiness) so that agribusiness and students interests coincide. 	<ul style="list-style-type: none"> ■ College ■ Business ■ GFA / Agro Duo
Monitoring	<ul style="list-style-type: none"> ■ Monitoring apprentices work in the agribusiness: asking students and agribusinesses and prompt reaction in case of inadequacy (for example relocating the student). 	<ul style="list-style-type: none"> ■ College ■ GFA / Agro Duo
Study – Evaluation	<ul style="list-style-type: none"> ■ Developing criteria for the best apprentice and agribusiness, identifying the best through contest, awarding and studying the case (what was the reason of success) and promoting them. 	<ul style="list-style-type: none"> ■ College ■ GFA / Agro Duo
Improving quality of study	<ul style="list-style-type: none"> ■ Retraining in-service teachers; ■ Attracting new (young) staff. 	<ul style="list-style-type: none"> ■ College
	<ul style="list-style-type: none"> ■ Improving syllabus (including by underlining areas: berries, hazelnuts, laurel, etc.); 	<ul style="list-style-type: none"> ■ College ■ Business
	<ul style="list-style-type: none"> ■ International study visits of the vocational college teachers and agribusiness instructors for learning good practice abroad. 	<ul style="list-style-type: none"> ■ Donor ■ GFA / Agro Duo
	<ul style="list-style-type: none"> ■ Visit other colleges to learn the best practice. 	<ul style="list-style-type: none"> ■ College ■ GFA / Agro Duo ■ Business
	<ul style="list-style-type: none"> ■ Vocational institution staff visits to the agribusinesses for observing processes and learning the best practice. 	<ul style="list-style-type: none"> ■ College ■ GFA / Agro Duo ■ Business

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ANNEX N1

PART N1: GENERAL INFORMATION

Agribusiness name and experience (establishment year)	
Experience of the agribusiness (years)	
Name of the respondent	
Age of the respondent	
Position	
Actual address of the business / farm (region, municipality, village)	
Short description of the business (garden area, number of cattle, number of clients, etc.)	
Number of permanent employees (as of 2019)	
Number of seasonal workers (as of 2019)	
How many employees did you hire and how many left the job on average in the previous years? Did taking on the apprentice have any impact on this? (as of 2019)	

PART N2: APPRENTICE

- When did you engage in the implementation of the dual programs with work based learning approach?
- Which educational institutions are you cooperating with and in the frame of which program/s?
- How many instructors do you assign to the apprentices? (position, name)
1/2/3 -----
- How many apprentices did you have in 2016-2020?
- What are the duties of the apprentices in your agribusiness? (Please, describe key activities performed by the apprentice over one year. For instance, field works: pruning, harvesting, office work, etc.)
- Are the apprentice duties limited only to the teaching plan or do you engage them in other activities as well? (If yes, please name the activities)
- How many days and hours learns / works on average (per week) over the year in the agribusiness?

PART N3: COSTS

- How much is the apprentice pay (including income tax and pension fund payment) (GEL)?
- How do you pay the apprentices (with money or in kind)?
- If you pay with money, is it cash or a bank transfer?
- What expenses did you bear before program implementation? (for getting authorization)
- What expenses do you have to bear on the stage of program implementation in order to provide an apprentice with the teaching resources (stationary, equipment, uniform) (GEL)?
- What time is allocated by the instructor to the apprentice in the process of teaching and work implementation (per week/month)? (preparation, interview/meetings, retraining, awareness raising, engagement of the apprentice in the work, evaluation/examination)
- What is instructors' pay and do you pay instructors additionally for working with apprentices? If yes, how much? (GEL)
- Do you have voluntary social benefits for the apprentice? If yes, how much? (for instance, free meals, transportation, accommodation, insurance, etc.) (GEL)
- Did you have any financial damage because of the apprentice and what type of damage? (damage due to the loss / damage of the things / materials or due to neglecting animals)
- Are there any other expenses associated with having an apprentice? (for instance, student accommodation, materials purchasing, tools depreciation expenses, etc.) (GEL)

- How many apprentices quit studying / left agribusiness in that period? What expenses are to be born in such case?
- What was the reason of the apprentice leaving the agribusiness: decision of the agribusiness and/or the apprentice will?
- Were there any unforeseen expenses due to the current pandemic? (If yes, what expenses and in what amount?)

PART N4: BENEFITS

- To what extent is the work performed by the apprentice in your agribusiness equal to the work performed by the skilled worker? (%) How is this percentage changing over the months?
- What is the skilled worker's monthly wage on average? (GEL)
- What is the average time it takes an apprentice to gain the knowledge and skills comparable to that of the skilled worker, as observed by you? (month, year)
- How does the apprentice work compare to the same work performed by the unskilled worker in you agribusiness? (%) How does this percentage change over months?
- What is the average daily/monthly wage of the unskilled worker on average? (GEL)
- What is the average time it takes for the apprentice knowledge and skills to equal that of the unskilled worker? (month, year)
- Were there any novelties/innovations the apprentice suggested in your agribusiness? (new idea, up-to-date technologies, information on grant competitions, etc.)
- Did you get any financial or technical benefit in the frames of program implementation? (direct financial assistance, apprentices' outfit/equipment, improved infrastructure, retraining employees, etc.)
- What additional benefits did/do you have access to in the frames of the program implementation?
 - Participation in the study tours,
 - Getting to know new clients,
 - Promotion, increasing visibility of the agribusiness
 - Making cooperation with the state institutions simpler
 - Getting information on new possibilities and building capacity: retraining employees through dual programs and training instructors;
 - Starting working as a teacher/administration staff in the vocational college

- Possibility of further using of the criteria and methodology developed for the selection and evaluation of the students registered for the dual programs that will help in selecting/evaluation human resources on the organizational growth stage;
- Other (please, give details)
- What is the optimal (cost effective) number of apprentices for your agribusiness as shown by your experience?

PART N5: FINAL EVALUATION OF THE PROGRAM AND ADDITIONAL INCENTIVES

- Is theoretical knowledge received in the educational institution enough for the apprentices working in the agribusiness in the frames of the program?
- Did you retain/hire anybody from the trained apprentices? Did you give your employees a chance to become dual program students?
- Would you prefer retaining/hiring an apprentice/graduate or hiring unskilled worker? Why? (please, focus on the cost – benefit ratio)
- What is the biggest benefit for you in participation in this program? What benefit do you see in the apprentices' participation in the program?
- What is to be improved in teaching/working with this approach? What would you change and / or add?
- Communications mechanisms between college and agribusiness (form, periodicity, content, etc.)
- Are there any ways of ensuring safety and availability of the first aid in the agribusiness and how is safety and first aid of the students provided when required? For instance, by instructing them, making them sign a document confirming that they are aware of the safety measures, possessing first aid medicines, etc.
- What would be your motivation for staying in partnership, growing and introducing novelties?
 - apprentices with better skills and knowledge
 - staff capacity building
 - possibility of networking
 - access to the new possibilities
 - promotion of and raising awareness on the agribusiness
 - Getting advantage in grant competitions
 - tax benefits, etc.
 - participation in study visits

- international exchange programs
- Opportunity of working as a vocational teacher/administration staff in the educational institution
- Becoming a member of the sectorial organization
- Opportunity of using workforce with the corporate culture and required skills gained as a result of program co-implementation
- Other (please, name them)

