

Report on the Capacity Assessment Findings



Introduction

The primary objectives of the “Accelerate Digital Transformation of Agriculture Industry in Georgia” project are the mapping of agricultural service providers, the assessment of the needs and capacity of farmers for digital technologies, to provide appropriate training and to document cases of good practices in the field of digital agriculture in Georgia.

The desired outcomes are divided into three main steps:

1. Conduct a capacity and needs assessment (CA) of GFA’s member farmers to identify their needs, capacities and existing digital technologies in agriculture.
2. Increase the capacity of GFA members as well as service providers in sharing the information with digital technologies (Google Maps); create a database of agricultural service providers and make it accessible to stakeholders.
3. Collect and report good practices in the field of digital agriculture (also showing the return of investment (ROI) for the selected cases) and case studies showing the diversity of digital technologies and platforms utilized in Georgia.

The project mainly focuses on the aspect of capacity assessment, data collection and analysis as well as training (for second output) accordingly. The main tools used within the project were surveys and training. The progress has been constantly monitored throughout the entire process. The survey was conducted through a phone call by the GFA’s Call Center operators.

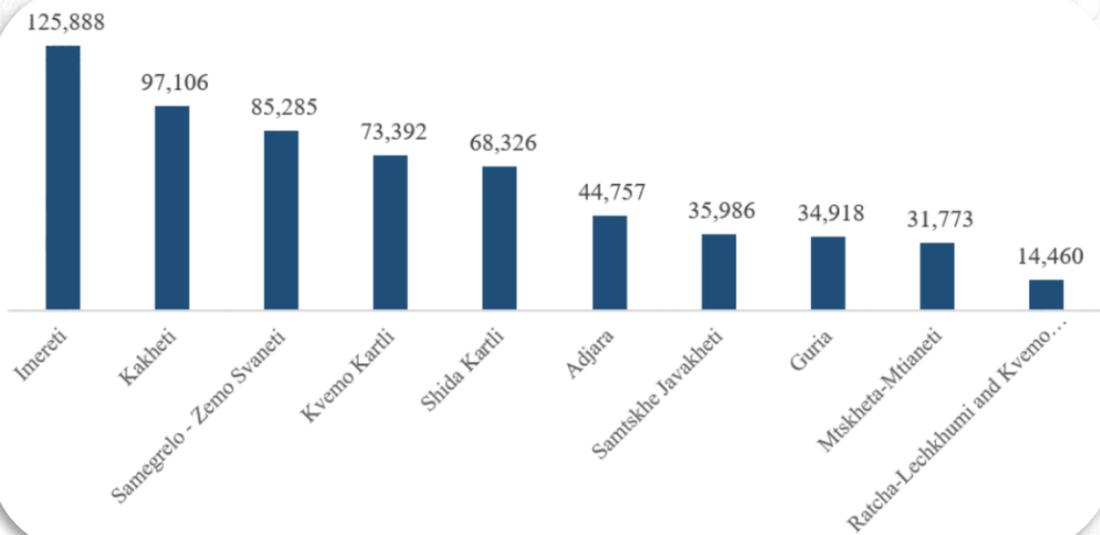
Agricultural households in Georgia

There is no specific legal-economic definition of a farm and farmer in Georgia at this time. Consequently, organizations and individuals working in the field must establish their own standards and criteria for what defines a farm and farmer. An important feature of the farm is land and resource ownership. The essence of farming is the production of agricultural products (cereals, fruits, vegetables, etc.), both to meet farmers’ own needs and for sale. There are different forms of farming in Georgia. The most common forms are: family, individual, joint, corporate, and lease, among other forms.

Georgia is an agriculture-oriented country, where many domestic agricultural households are involved in the production of various agricultural products such as: potatoes, maize, grapes, nuts, etc. According to the National Statistics Office of Georgia, 611,891 agricultural households are registered in the regions of Georgia (excluding Tbilisi), which are distributed in the following regions:

A household is considered to be an agricultural household when at least one member of the household is operating a holding (farming household) or when the household head, reference person or main income earner is economically active in agriculture. OECD, Glossary of statistical terms, 2001.





Source: National Statistics Office of Georgia

Figure 1: Number of agricultural households in the regions of Georgia

Characteristics of GFA membership

The Georgian Farmers' Association is the largest association of agricultural households in Georgia. Membership is voluntary. Becoming a member of the GFA is a straightforward process. Applicants for membership need to fill in a form with their first and last name, telephone number, email, business area / business type and answer the question on whether they agree to participate in surveys conducted by GFA and receive newsletters. Members have a number of rights as well as responsibilities. The rights of GFA member farmers are:

- Right to receive information on relevant topics regarding GFA's activities;
- Access and right to participate in GFA's relevant activities;
- Right to choose if members would like to share their contact information with others;
- Right to access GFA's database and contacts of all GFA's members;
- Right to obtain a certificate confirming GFA membership;
- Right to bring up issues to GFA's Farmers' Council through their representative;
- Right to contribute and support GFA's advocacy activities;
- Access different events such as training, seminars, workshops, study tours, and trade fairs;
- Right to participate in surveys and focus groups;
- Right to access relevant meeting minutes and reports including GFA's annual reports.



Georgian Farmers' Association
საქართველოს ფერმერების ასოციაცია

On the other hand, GFA member agricultural households also have responsibilities:

- Take active participation in the work of the Association;
- Respect and follow GFA's regulations defined in the charter;
- Consult with GFA before taking a public position on issues relevant to GFA; if members' opinion is different from the opinion of GFA, members should speak on their behalf and not on behalf of GFA;
- Protect and raise the reputation of GFA;
- Restrain from actions and conduct which could incur material damage to the Association, or tarnish the reputation of the Association;
- Spread the idea and goals of the Association.

Activities carried out by GFA

The GFA, which currently unites 3,951 farmers from all regions of Georgia, conducted a capacity and needs assessment of its member farmers for digital agriculture. By telephone, the GFA gathered information from 301 farmers from all regions of Georgia to compile a survey. For this effort, the GFA team became acquainted with FAO guidelines on capacity assessment and the basic techniques and principles that need to be applied during the study.

The GFA has a complex organizational structure, with various departments, including the departments of Research & Analytics as well as a Call Center. Generally, these two departments are heavily interconnected and work closely together during the data gathering process. Accordingly, the representatives of both, i.e., researchers and call center operators, were involved in the proposed project. In particular, the researchers were in charge of outlining the questionnaire for the capacity and needs assessment, data analysis and development of the research paper; whereas the call center operators had the roles of interviewers. They contacted the GFA's member farmers and collected responses from them via telephone. The GFA maintains strong ties with its members. There is a mutual trust between these two bodies. Therefore, the project team expected a high level of engagement during this stage. An important detail to note is that once the questionnaire was developed, the GFA team firstly pretested it amongst some of its member farmers in order to identify whether or not the questions are well-developed and easily understandable, without a further need for clarification. After the questionnaire passed this validation stage (with corresponding updates to the questionnaire according to the call center operators' feedback), the call center operators embarked on the data collection endeavor. In general, through the assessment, the GFA team aimed to identify the following issues: the digital platforms that are most used amongst GFA farmers and the purpose behind their utilization; the needs of the farmers with regards to the digital technologies, i.e., the degree of their skill-set range and the capabilities to handle digital solutions (the latter will also help identify areas for improvement). The detailed actions undertaken within the project are described in the report titled "Survey – Methodology and Questionnaire", which has already been submitted to FAO. <http://www.fao.org/capacity-development/resources/practical-tools/capacity-assessment/en/>; <http://www.fao.org/capacity-development/en>



Capacity Assessment Findings

The GFA conducted a survey of capacity and needs assessment of its member farmers through telephone interviews. The survey design and sampling methodology and approach are described separately in the report titled "Survey – Methodology and Questionnaire", which has already been submitted to FAO. The basic techniques and principles applied to the interviews corresponded with FAO guidelines. After the questionnaire was developed, the GFA team pretested it amongst ten GFA member farmers in order to identify whether or not the questions were well-developed and easily understandable. Based on the pretest phase, some small issues were corrected and the questionnaire validation phase was completed.

Based on the experience gained by GFA while conducting surveys among Georgian farmers, the typical response rate among GFA member farmers is 40-45%. The approach used for completing the targeted 300 interviews was based on a general sampling strategy. To successfully complete 301 interviews, 830 farmers were contacted. Over a three-week period, a total of 830 telephone calls were made by call center operators, of which 301 (36%) resulted in a completed interview. No one answered the phone in 310 cases, while in the remaining 219 cases a suitable respondent (a decision-maker on the farm) was not available. The data was aggregated by regions and farm size and is analyzed in regards to the following metrics: age, gender, region and field of operation.

Capacity Assessment Findings

The majority of the respondents (218, representing 72.4%) are men. Unlike the distribution of sex, the age of respondents is more or less equally distributed:

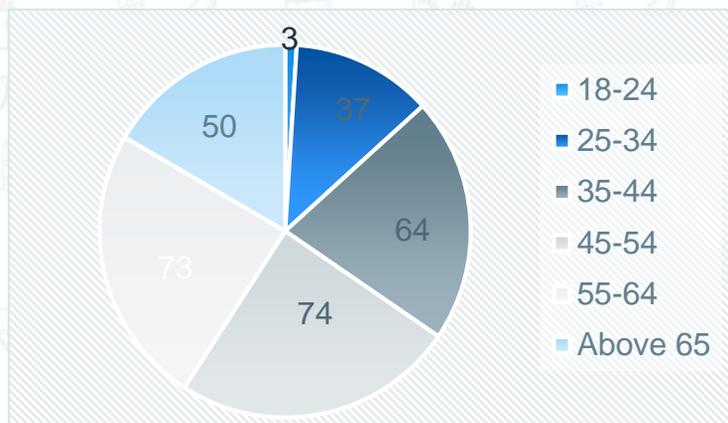


Figure 2: Age of surveyed farmers

None of the respondents declined to share their age, as no one chose the "I prefer not to say" option. The most representative age groups among the respondents were farmers aged 45-65, which ultimately makes up 48.9% of the farmers surveyed.

The level of education of the surveyed farmers is quite diverse. Most of the respondents (133) hold a bachelor's degree and 55 farmers hold a master's degree. In addition, a large number of farmers have diplomas confirming basic vocational education (45 farmers) and state documents certifying full general education (44 farmers). Fewer farmers (12) have state documents confirming a basic level of general education. The number of farmers with diplomas confirming an associated qualification and a Ph.D. diploma is also very small (7 and 5, respectively). Figure 3 shows the distribution of the respondents' level of education:



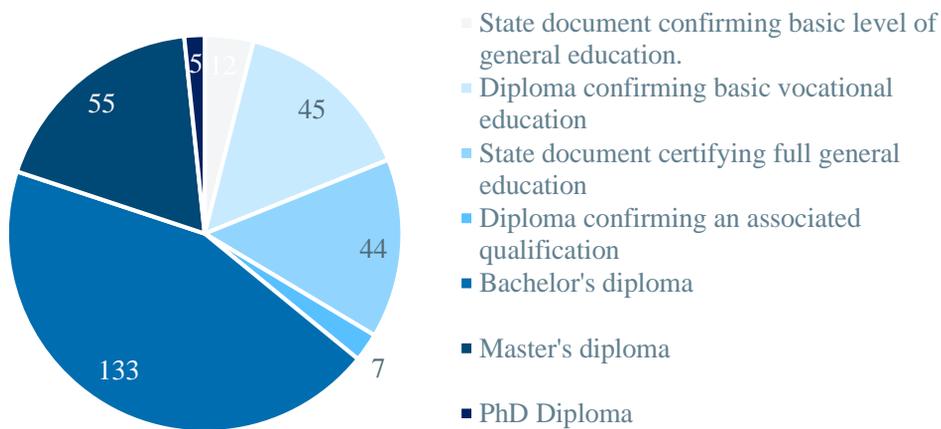


Figure 3: Level of education of the surveyed farmers

With regards to the completion of formal training courses in the field of agriculture, a majority of respondents (206 or 68.4%) stated that they have undergone some form of such trainings.

Information about the farm / agribusiness

Location

The regional affiliation of the surveyed farmers is also diverse. It follows the regional distribution of Georgian Farmers' Association members: For example, most of the farmers who are members of GFA are registered in Racha-Lechkhumi, while the fewest farmers are registered in the Adjara region. A similar trend is captured among the surveyed farmers, and consequently, most of the farmers were surveyed from Racha-Lechkhumi, and the fewest from the Adjara region.

The vast majority of farms (92%) are located in rural areas, with a comparatively small number of farms located within the administrative boundaries of cities. The overall regional distribution of surveyed farms is presented in Figure 4.

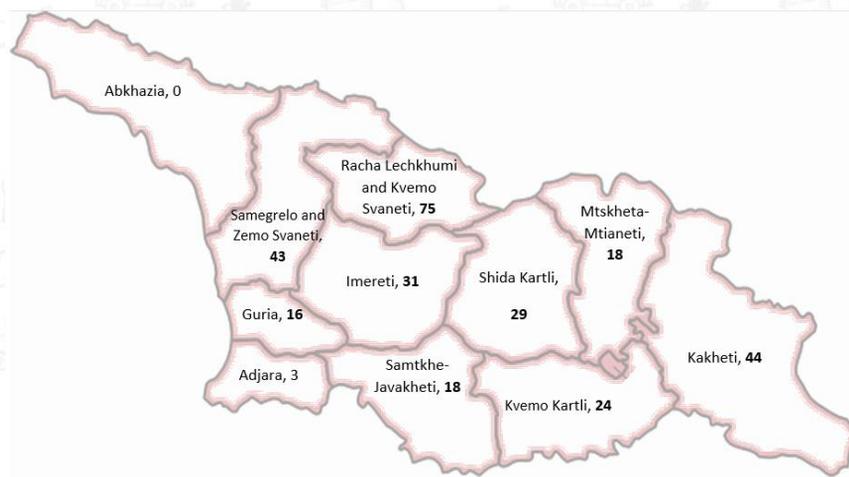


Figure 4: Location of the farms



Activity profile

One of the main goals of the questionnaire developed for farmers was to survey their activities and assess whether the latter is focused on livestock or crop production, as well as the particular methods farmers use to sell their products. Most of the surveyed farmers (147 farmers) are engaged in the production of permanent crops, while the least popular farming activity among the surveyed farmers is poultry (10 farmers).

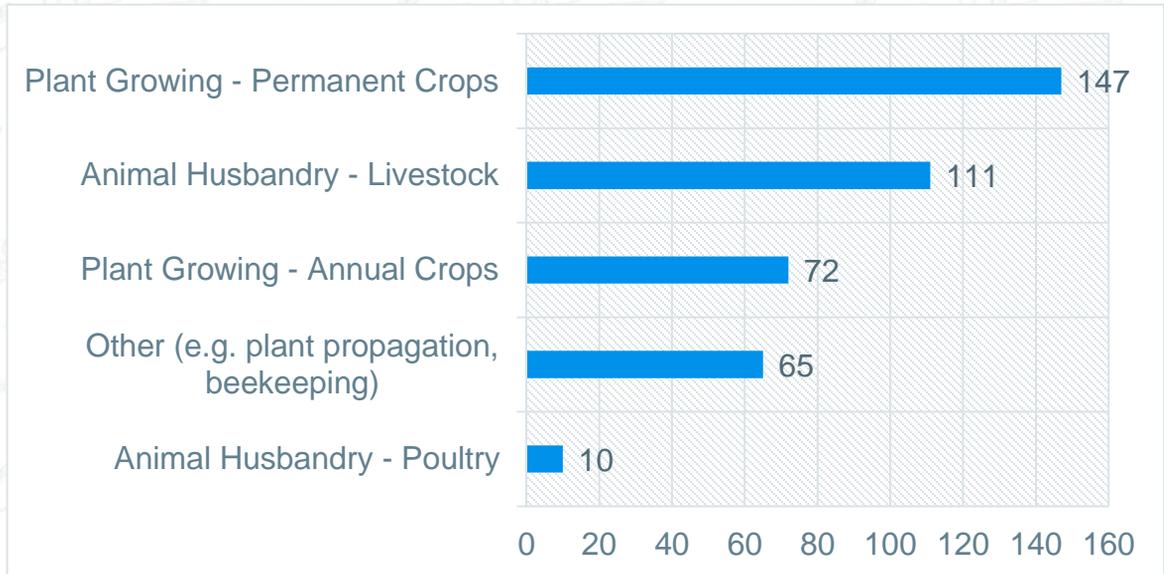


Figure 5: Types of agricultural production among surveyed GFA member farmers

It is also noteworthy that a small number of farmers are engaged in several activities simultaneously. Seventy-one of them chose two activities from the above. Most often, farmers indicated annual and permanent crops (17 farmers) and permanent or annual crops and livestock (28 farmers). In addition, 13 farmers are involved in three types of activities.

In terms of the type/purpose of agricultural production that surveyed farmers are involved in, in most cases (49.2%), the farmers are entirely focused on crop production. In contrast, 31.2% of farmers are focused only on livestock production, while the remaining 19.6% focus on both crops and livestock production in different proportions. It is also interesting to see the purpose of farmers' production activities to find out how market-oriented they are. As the survey results show, in most cases (70.4%) farmers are focused on marketing their products. Very few farmers (28 farmers, or 9.3%) produce primarily for their own consumption.

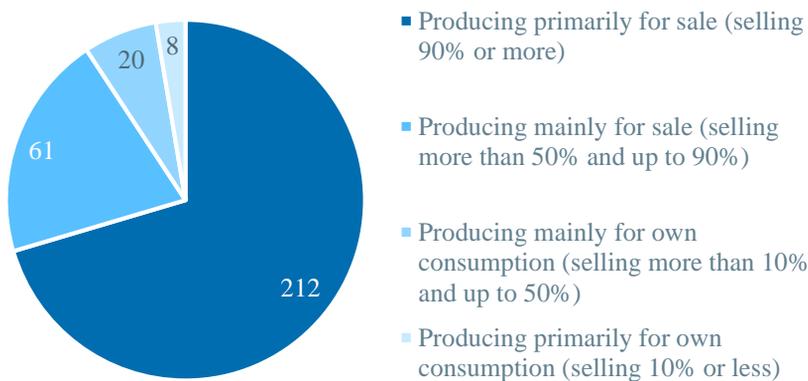


Figure 6: Purpose of agricultural production



The purpose of agricultural production can be directly linked with the farm size. While farms of all sizes produce mainly with the aim of selling their products, market participation increases with farm size: 89% of micro and small farms produce mainly for sale. This figure reaches 96% for medium and large farms. Predictably, there are no medium and large farms that produce primarily for their own consumption.



Figure 7: The production purposes with different size of farms

Size, status and labor

In terms of farm size, micro, small, medium and large farms were surveyed. In general, most farms in Georgia are micro and small farms. This pattern is reflected in the high proportion of these farms among surveyed farms (75.8%). Medium and large farms accounted for 15.2% and 9% respectively of farms surveyed. It is also worth mentioning that the main criteria for deciding whether a farm is micro, small, medium or large for this particular survey is the farmland area of each farm.

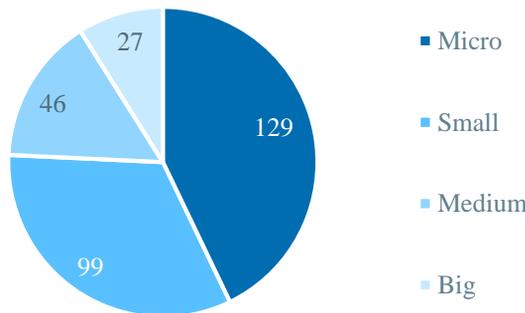


Figure 8: The size of the surveyed farms

In terms of the number of workers (not limited to employed persons) in the surveyed farms, most of the farms have a small number of farmers. Fewer than six people work on most farms (197 out of 301). At the other end of the spectrum, the livestock farm "Lavrus" employs 130 farmers, mostly full-time. However, farms of this type and scale are an exception today. The overall distribution of the number of workers involved in agricultural activities on the farms included in the survey is depicted in Figure 9.



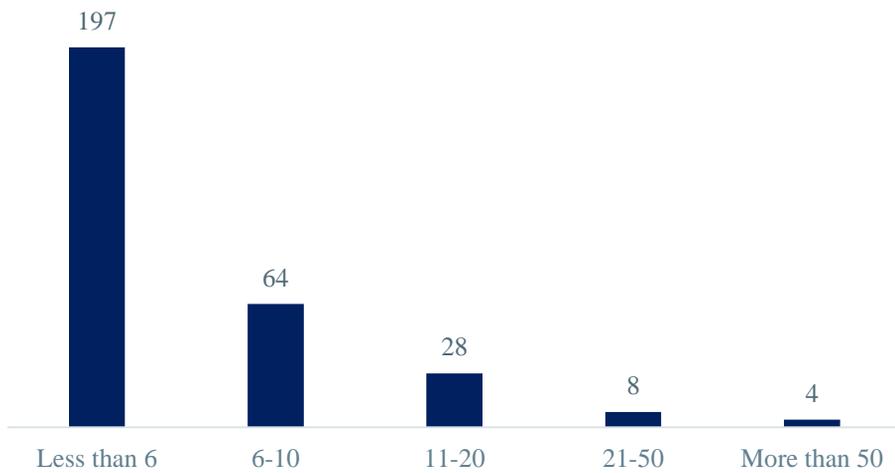


Figure 9: Number of people working in the farms

Only a certain portion of the people working on the farms are employed full time, while a certain proportion of the farmworkers are farm owners themselves and a member of the household. In the case of small farms, family members are formally employed on the farm. Overall, the majority of farmers surveyed (73.1%) have no people employed on their farm other than themselves and their family members. The general dynamics of employees on farms is given in the following figure:

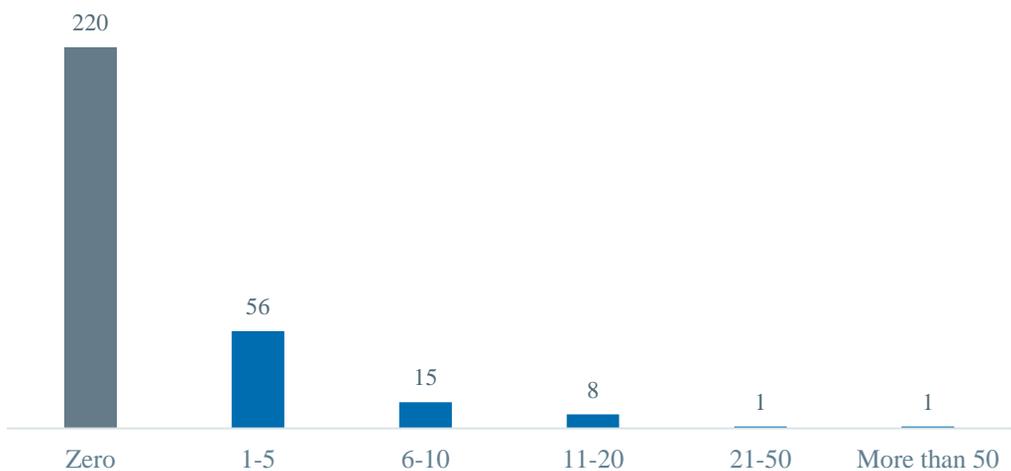


Figure 10: Number of employees in farms

According to the survey, women also work in most of the farms. Only 14.3% of the surveyed farms do not employ women, while in most cases (53.2%) one or two women work on the farms. Three to ten women work in 28.2% of the surveyed farms, while more than ten women can be found in only 4.3% of the farms.

One of the questions in the questionnaire developed for farmers is aimed at estimating the annual turnover of their farms. A significant proportion of farmers (38.5%) declined to answer the question. Among those who answered the question, the annual turnover of most (40.2%) farms does not exceed 30,000 GEL, while about 18% of farmers have an annual turnover from 30,000 to 200,000 GEL. Only 3.4% of the surveyed farmers have an annual turnover higher than GEL 200,000.



In terms of the legal status of the farm, out of 301 surveyed farmers, 69 were able to state the name of their farms and agribusiness. The overall picture of farmers' legal status is given in the following figure:

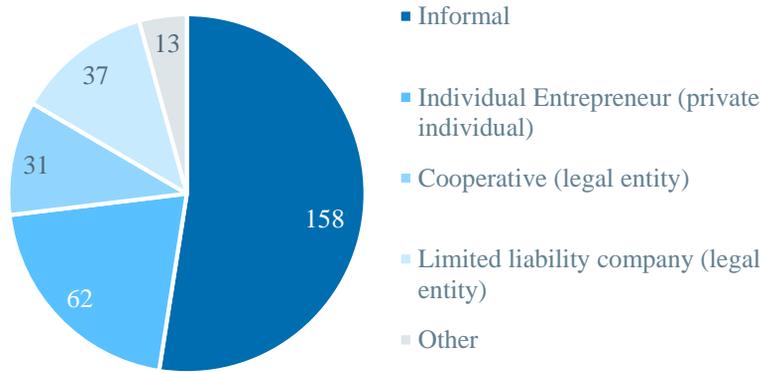


Figure 11: Legal status of the interviewed farmers

The majority of the surveyed farmers (52.5%) are informally engaged in agricultural activities. 20.2% of farmers (62 farmers) are individual entrepreneurs, while cooperatives and limited liability companies represent 10.3% and 12.3% of the surveyed farmers, respectively. The natural and physical capital of the farm is, in most cases (83.7%), fully owned by a family that manages the farm. In other cases, the natural and physical capital of the farm is mostly owned by the founders of legal companies or family cooperatives.

Online presence and activity

The survey also investigated the popularity of Google's business profile among farmers. As a result, most of them (79.4%) are unaware of the existence of this type of platform. Further, six percent of farmers do not know whether their farm has it or not and only 14.6% of farmers (44 farmers) have a Google business profile. As for the farmers who have a Google business profile, 23 farms are listed on Google Maps, 11 of them are not listed on Google Map and the remaining ten farmers do not know if their farm is listed on Google Maps.

The farmers' survey also revealed that farmers are less likely to turn to online sales services, as only 15.3% of surveyed farmers sell farm/agribusiness products online and only 1.3% of farmers plan to use online sales services in the future. The remaining 83.4% do not use online services and they do not intend to engage in online sales in the near future. As for the farmers who already use online platforms to sell products (46 farmers), most of them (80%) use Facebook. In addition to Facebook, online platforms such as soplidan.ge, kalo.ge, mymarket.ge, Instagram, ibazar.ge, allmarket.ge and 8000vintages.ge were named. It is also interesting to see what the share of online sales in total sales are:

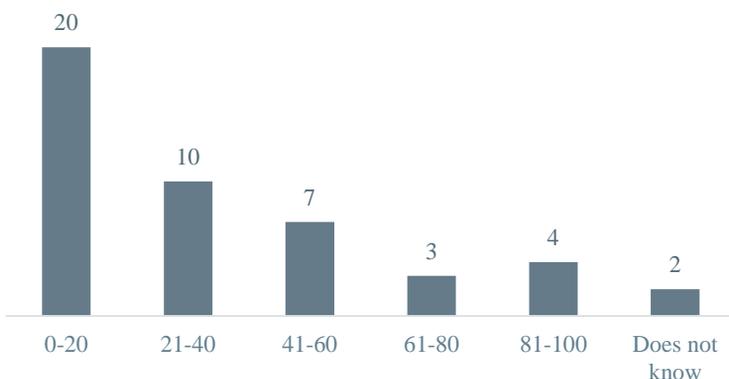


Figure 12: The share of online sales in total sales



As seen in the graph, in most cases only a small portion of total sales were generated from online sales (share of online sales in total sales is less than 40% in 30 out of 46 cases). Only two farmers get 100% of their total income from online sales and two farmers do not know what share comes from online sales because they have not yet conducted the proper research.

ICT capacity, skills and needs assessment of farmers

Digital skills

The project also assessed farmers' digital capabilities and skills. Farmers rated themselves on a scale of one to five for how well they mastered digital skills, where one indicated very limited skills and five stood for excellent skills. Results are presented in Figure 13.

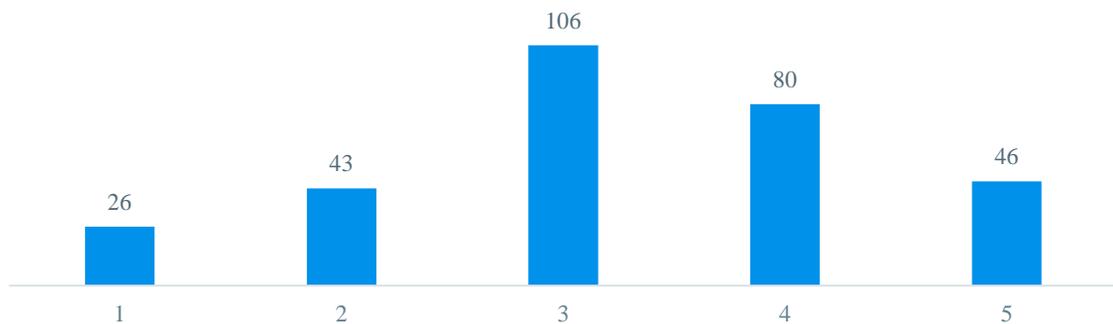


Figure 13: Digital skills of surveyed farmers

The majority of farmers (61.8%) evaluate their digital skills positively (average and above average), 26 of them believe that their skills are very limited, while 46 farmers think that they have excellent digital skills. In terms of specific digital devices, smartphones and personal computers are especially popular among farmers. The results are given in Figure 14:

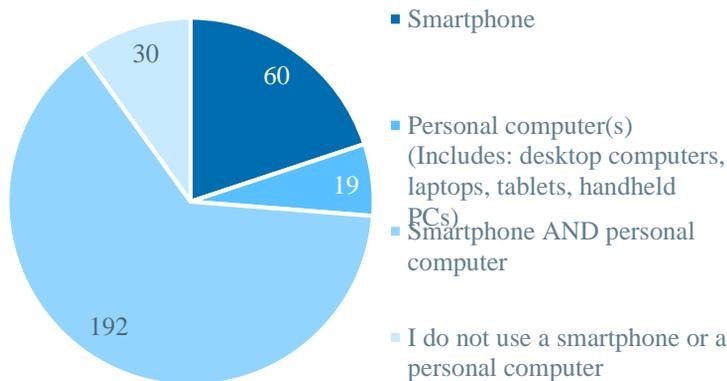


Figure 14: Digital devices used by surveyed farmers

The survey also revealed the exact digital activities the farmers have carried out in the past few months. Digital activities are divided into three major categories: none or very limited digital skills, basic digital skills and intermediate digital skills. None or very limited digital skills combine the following skills (apart from the farmers who have not carried out any digital activities):



- Sending e-mails with attachments;
- Using word processing software;
- Transferring files between a computer and other devices;
- Copying or moving a file or folder.

Basic digital skills are owned by farmers who have at least one activity related to digital skills performed over the last three months or have used the internet at least on a weekly basis and have performed at least three activities related to the internet. And finally, farmers who have performed at least four activities related to digital skills over the last three months can be considered as a farmer with intermediate digital skills.

Out of the 271 farmers who own digital activities, 31 farmers have none or very limited digital skills, 110 farmers have acquired basic digital skills and the rest of the farmers (130) have intermediate digital skills. In terms of specific digital activities, farmers are most often engaged in the following six digital activities: sending e-mails with attachments, copying or moving files or folders on a device, transferring files between a computer and other devices, finding, downloading, installing or configuring software, use word processing software (e.g. Microsoft Word, Google Docs) and use spreadsheets (e.g. Microsoft Excel, Google Sheets). As for the least frequently targeted digital activities, setting up effective security measures (e.g. strong passwords, login attempt notification) to protect devices and online accounts (24 farmers) and writing code in a programming language (10 farmers) are highlighted in this regard. An overview of involvement in the specific digital activities is given in Figure 15:

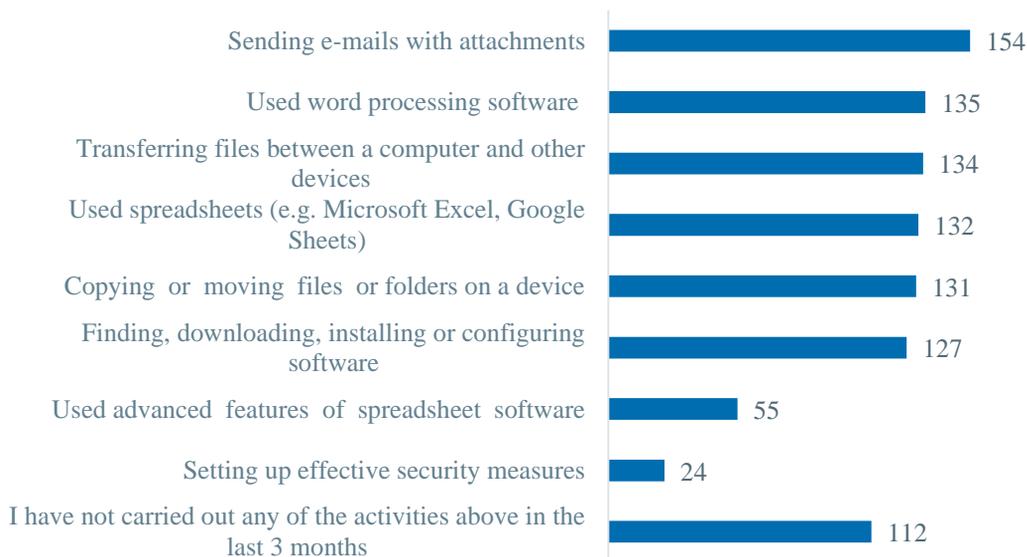


Figure 15: Digital activities carried out during the last 3 months

Digital skills and the use of digital tools might be an outcome of a combination of variables. For example, the educational basis might be strongly linked with the digital skills farmers currently own. Also, farm size might be positively correlated with the probability of using digital devices.



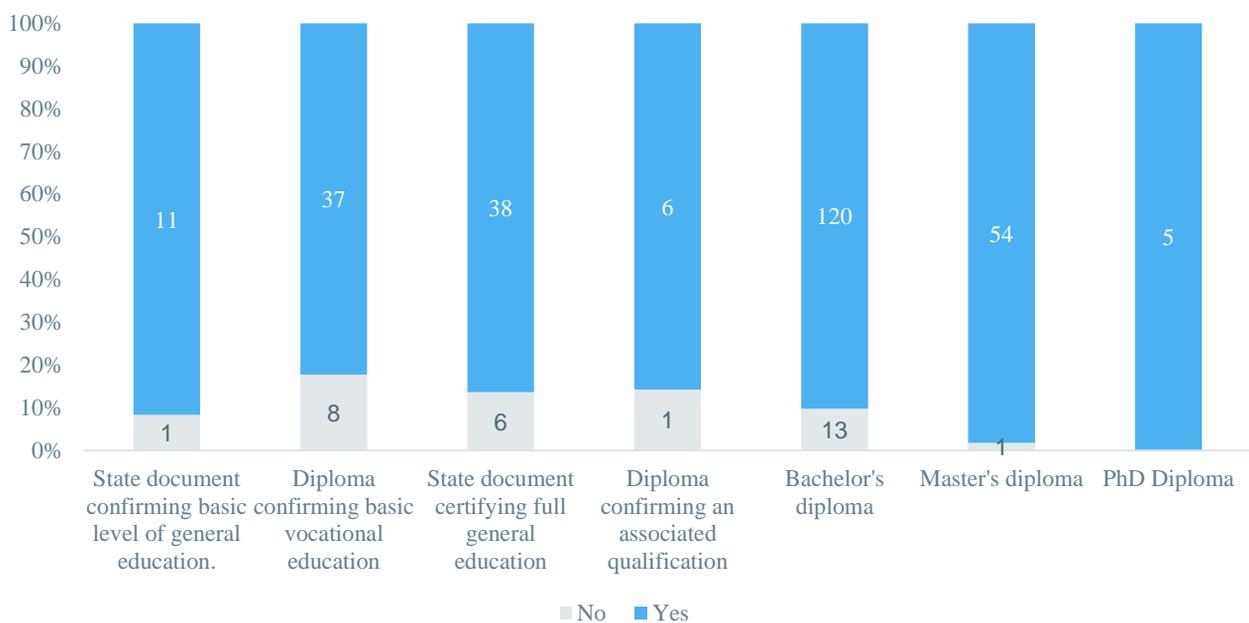


Figure 16: Use of digital devices across different educational levels

Using digital devices:

From Figure 16 it can be seen that there is a correlation between educational level and the probability of using digital devices by farmers. The higher the educational level obtained by a farmer, the more probability they have to be familiar with digital devices and therefore will be actively using digital tools in their working or everyday life. For example, all Ph.D. diploma holders use digital devices and only one out of 55 Master's diploma holders do not use digital devices.

Apart from education, using digital devices can be correlated with the farm size. Analysis of the data revealed that farmers on relatively small farms have a higher probability of not using digital devices, while on the other hand, the share of farms using digital devices is higher on bigger farms.

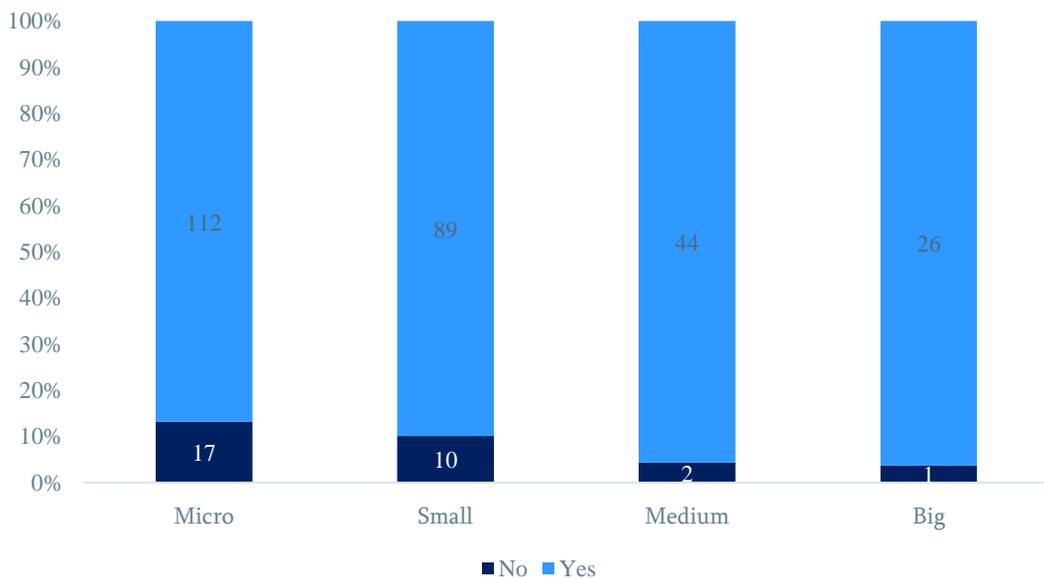


Figure 17: Using digital devices across different sized farms



Online activity level and abilities

Nowadays, not only in agriculture but in any sector, it is difficult to operate effectively without access to quality internet. The internet is primarily the first source of information for people employed in any sector. Otherwise, it will be difficult to respond appropriately to market demands and therefore produce a consumer-oriented product. In this regard, the agricultural sector is no exception, where the internet is of great importance. A survey of farmers showed that most (88%) have access to the internet (the farmers who indicated that they do not own any kind of digital devices at all are considered to have no access to the internet) and most (98%) have used it during the last three months. As for internet types, farmers most often use a mobile broadband internet type (245 farmers). Fixed broadband (e.g. cable, optical fiber, DSL, ADSL) internet was used by 195 farmers, so it seems that most of the farmers (173 farmers) use both types of internet.

Acquiring digital skills and using the internet can be positively correlated. The more digitally skilled the farmers are, the chances are higher that farmers might actively use the internet for activities such as messaging and/or making calls (e.g. Skype, Messenger, WhatsApp, Viber) and reading online news sites/newspapers/news magazines. It is also noteworthy that the internet is widely used to connect with public figures from the state. The majority of farmers (60%) actively use the internet to contact public officials to get the specific information they need. In the figure below it can be seen how digital skills might influence the ability to use the internet to interact with public authorities.

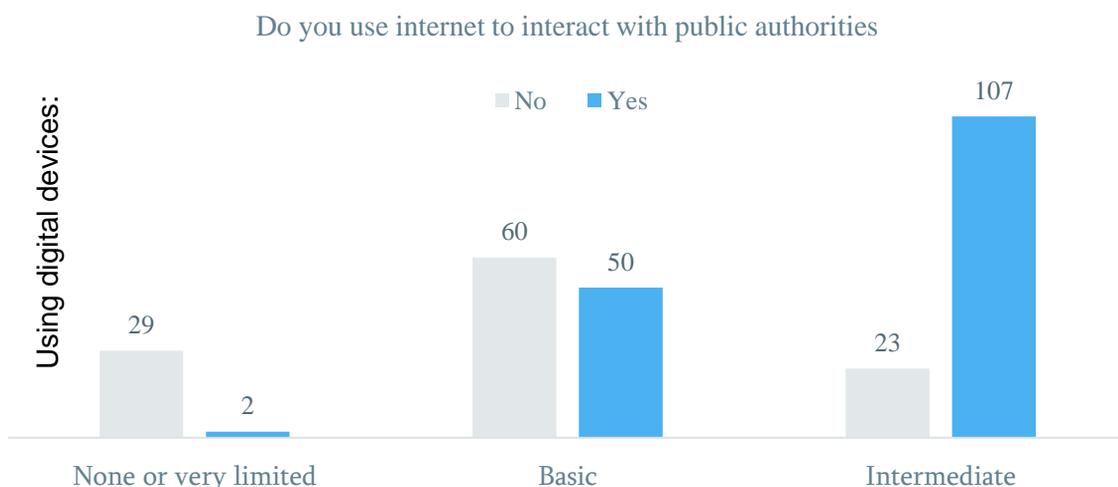


Figure 18: Importance of digital skills in interacting with public authorities

It is easy to capture the correlation between digital skills and the ability to interact with public authorities for various reasons. For example, 82% of farmers with intermediate digital skills have used the internet to get in contact with public figures, while on the other hand, only 45% of farmers with basic digital skills have tried to use the internet to interact with public authorities. The scenario is worse with the farmers who have no digital skills or limited skills: only 6% of farmers with none or very limited digital skills have used the internet to communicate with state representatives.

Apart from the need to interact with public figures, there are other ways to use the internet and GFA member farmers tend to use it for the following reasons:



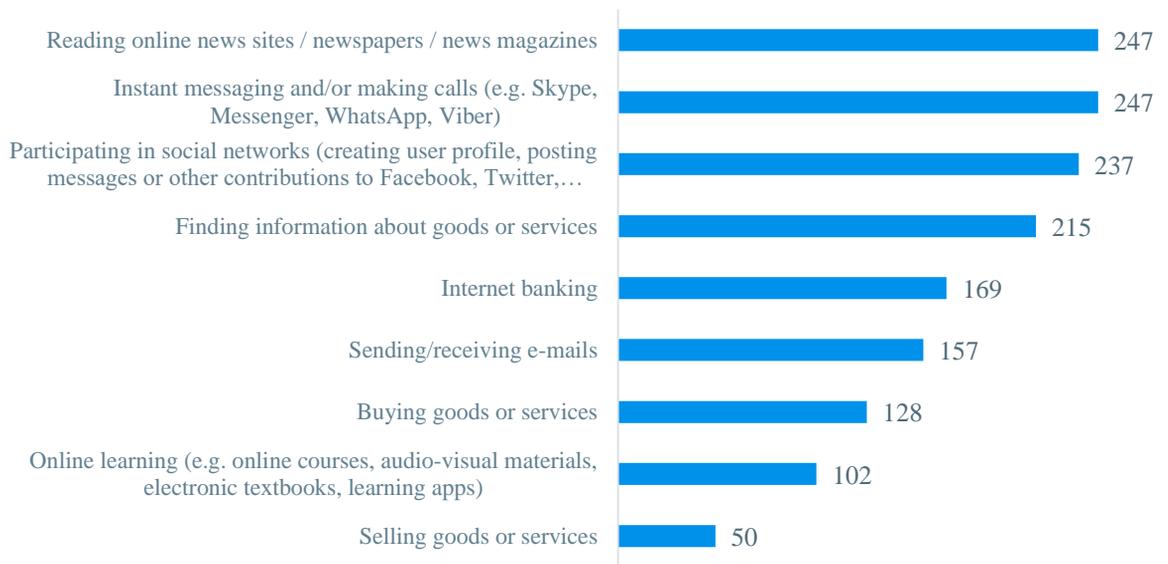


Figure 19: Reasons for using the internet in the last 3 months

Online platforms such as Google, Facebook and YouTube are actively used for personal interests and for business purposes. Booking.com, Airbnb and LinkedIn are less frequently used. Platforms such as Agrogate.world and Agronavti are used for business purposes only:

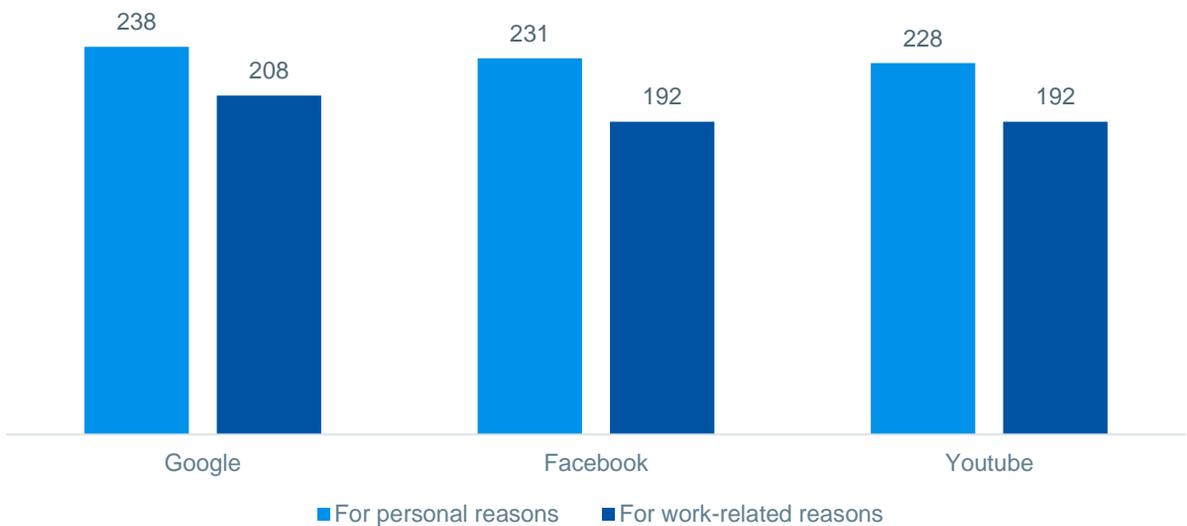


Figure 20: Online platforms used for personal and work-related reasons

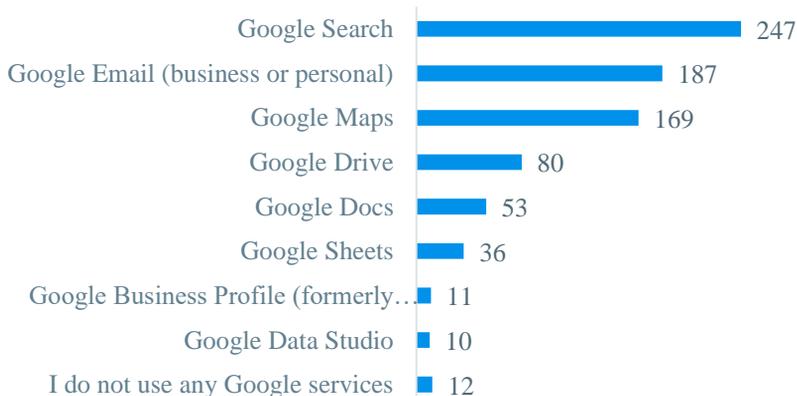


Figure 21: Google services actively used by farmers

The Google search service is the most actively used among farmers, followed by Google e-mail and Google Maps.



Perception and use of platforms and technologies for digital agriculture

Within the survey, farmers were asked about the digital technologies they use in their workplace. The results are presented in the figure below:

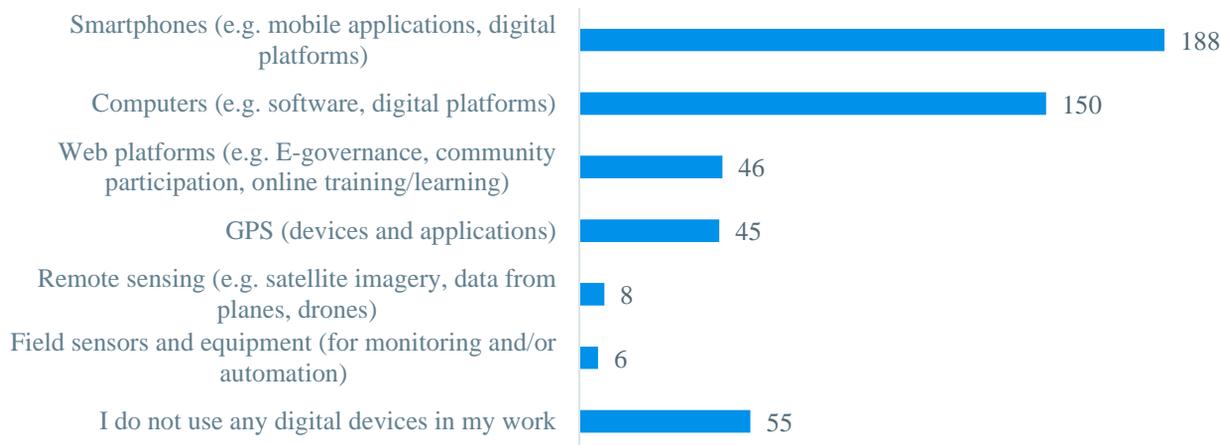


Figure 22: Digital technologies used by farmers in their workplace

It can be seen from the graph that smartphones and personal computers are most often used by farmers in the work process. The use of web platforms and GPS is also common. In addition to the technologies described above, only single cases of the use of digital technologies such as smart home technology and agricultural robots have been identified.

In terms of specialized farming applications, the majority of farmers (94%) do not use any kind of farming applications, and the rest of the farmers named the following farming applications:

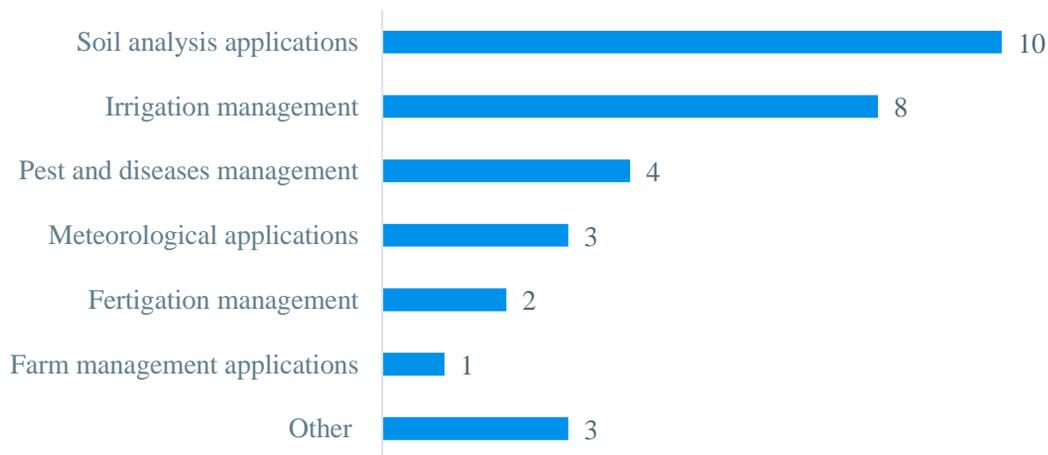


Figure 23: Farming applications in farming activities

Farmers also rated the perceived benefits of using digital technology for their farming activities on a scale of one to three, with one being 'not important', two being 'moderately important' and three being 'very important'. As a result, the outcomes of the estimation are as follows (the answers are summed up):



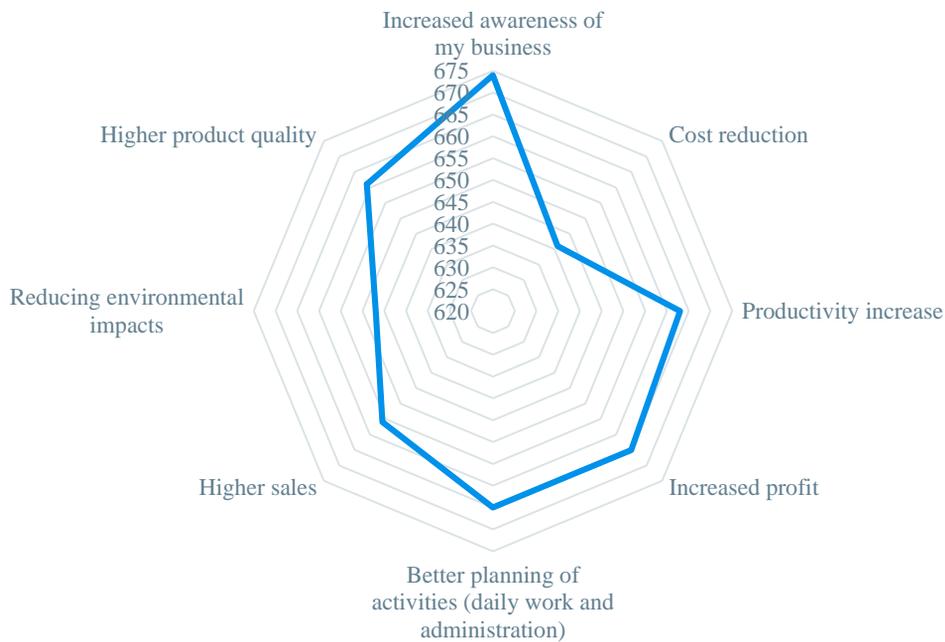


Figure 24: Perceived benefits of using digital technologies in support of farming activities

Farmers believe that the use of digital technologies will be most effective in terms of business awareness, while they think that digital technologies will have the least impact on cost reduction and environmental impact.

Farmers also addressed the potential difficulties of using digital technologies in terms of their importance and relevance to their farming activities. In this case, a scale from one to three was used, with one being 'not important', two being 'moderately important' and three being 'very important'. The perceived difficulties for farmers are given in Figure 25 (answers are summed up):

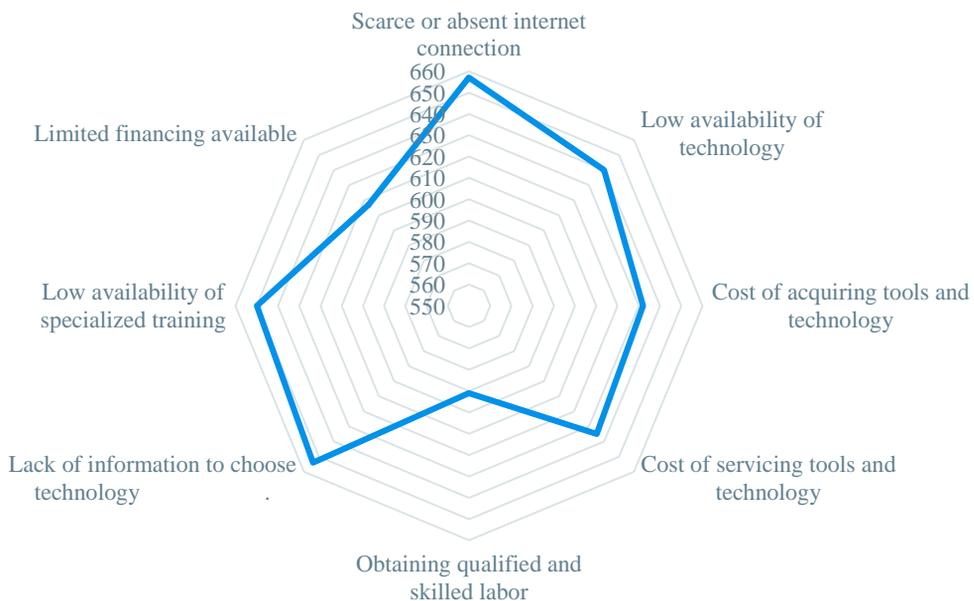


Figure 25: Perceived obstacles to using digital technologies in support of farming activities



Farmers believe that the main obstacles towards the use of digital technologies are scarce or absent internet connection, lack of information for deciding which technologies are most appropriate and low availability of specialized training to use digital tools and technologies. On the other hand, they believe that the least problematic will be finding qualified personnel.

Training interest and needs

One of the most important components of the current project is to train farmers to improve their digital skills. That is why the questionnaire aimed to understand their attitude towards training and to assess their readiness to receive additional education in the field of their choice. The majority of farmers (71%) are willing to learn more about digital technologies, 17% of farmers are not sure whether they want to deepen their knowledge in this field and only 12% of farmers refuse to participate in training in this area. As for exactly which digital platforms and technologies farmers want to understand more about, the results are given in the following figure:

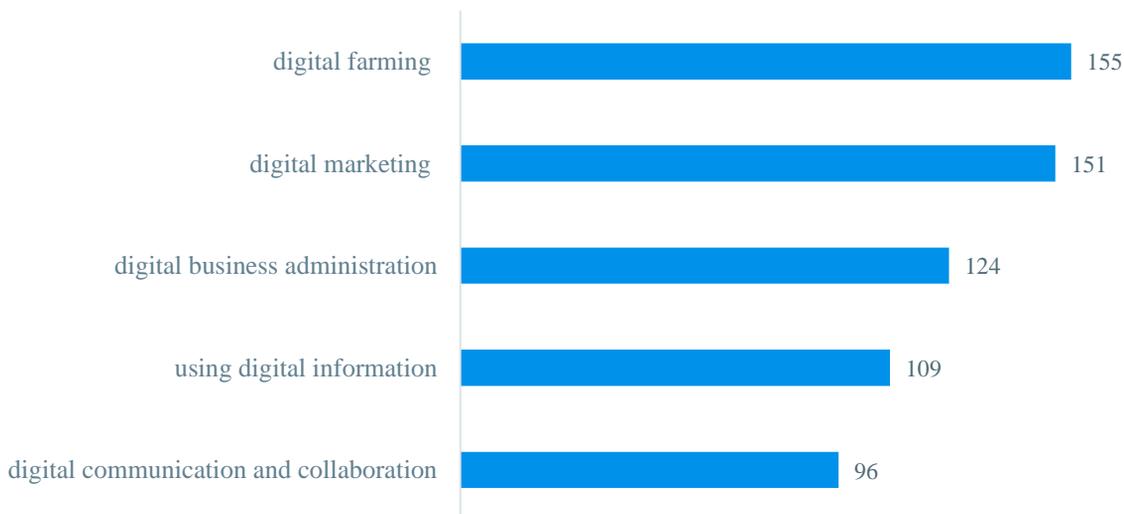


Figure 26: Preferred topics for trainings for farmers

Farmers are mostly interested in digital farming and digital marketing, and least interested in digital communication and collaboration. The number of farmers who do not own any digital devices (14 out of 30 farmers), express their desire to attend the training, nine out of 30 farmers may attend while the remaining seven farmers explicitly refuse to participate in the training. These farmers in most cases (27 out of 30) have a person (member of their family in all cases) on their farm who uses digital devices.

Farmers who do not use digital devices and / or do not have access to internet

Some farmers (34) have no internet access. Among the reasons why farmers have no access to the internet were named geographical location of farms and simply not having the need for internet. For example, farmers without internet access check the weather via TV and telephone, although in most cases there are people (family members) on the farms who use the internet. Also, there is a correlation between the size of farms and their internet access:



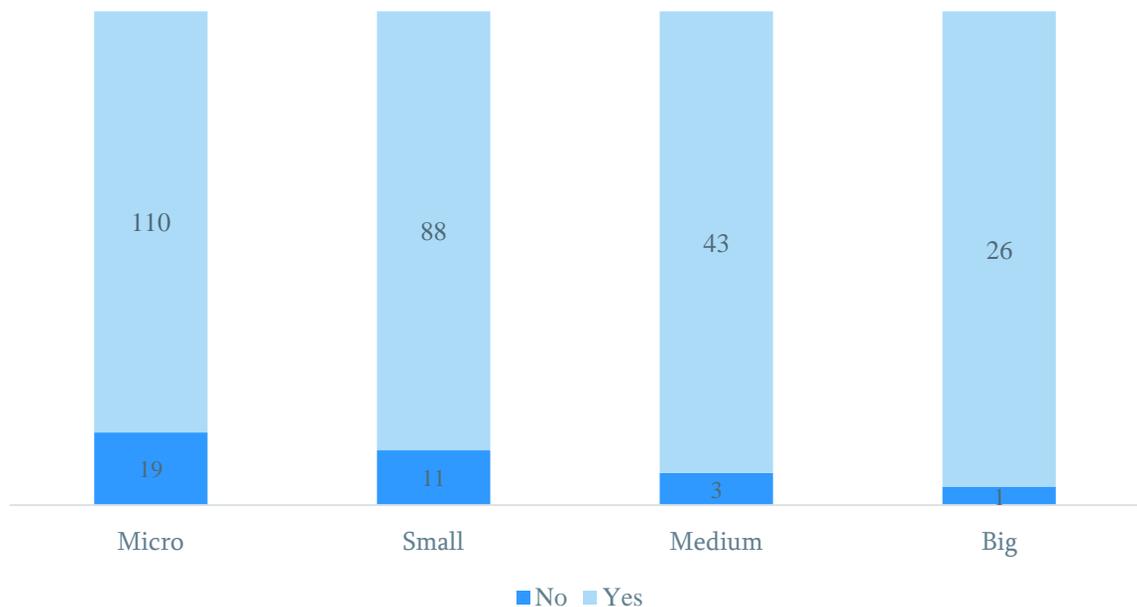


Figure 27: Farm size and access to internet

It is no surprise that the bigger the farm is, the probability is higher that it has internet access. Only five percent of medium and big farms do not have internet access. On the other hand, 13% of micro and small farms are producing agricultural products without internet use.

Many of the farmers (30 farmers) do not own any digital devices as well. As it turned out, the main reasons why some of them do not own any digital devices are that farmers feel that they simply do not need digital devices (15), or that some farmers (11) find that using the devices is too difficult for them. Reasons such as the cost of purchasing digital devices and lack of time were also named. Also, the farmers who do not own any digital devices receive weather forecasts via television.

Proposal for Capacity Development

The findings of the research showed that the willingness and interest of farmers are much more active in the digital world than before. An important factor is the rejuvenation of the agricultural sector. The older generation is not friendly with gadgets and is not active in social networks, although most of the surveyed farmers (90%) own digital devices, they do not use the full potential of these devices, but mostly perform only simple tasks such as sending emails with attached files, copying and forwarding files, sending messages, etc. Digital operations on family farms are mostly performed by the youngest member of the family and therefore involvement of young people in agriculture is very important because they are the mobile generation that sees the real needs and is ready to meet the global challenges of the world. The use of digital technologies is more problematic in micro and small farms (Figure 17). Therefore, digital skills training should focus primarily on micro and small farms.

Industry commentators shared first-hand experience of the impact of limited levels of awareness and the benefits associated with using farming technology. One of the main barriers observed by industry is a lack of farmer knowledge of the benefits using farming technology can bring about. It is still a leap of faith as to whether the technology will pay off or not. This lack of awareness around benefits is heightened, given the large amount of capital often needed for investment. The farmers will need to see first-hand evidence of technology working and of claims made by software providers, for example, a cost-benefit analysis.



Long before consideration happens, farmers will have to be convinced. It is important to properly convey the benefits of digital devices: the training could target at highlighting aspects of digital devices that farmers previously thought were less beneficial (cost reduction, higher sales, higher product quality). The survey has also revealed the most obvious difficulties that may be associated with the use of digital technologies (lack of information to choose technology, low availability of specialized training and scarce internet connection) and therefore training materials should be created in that manner to provide some meaningful recommendations to overcome those obstacles.

Digitalization-driven transformation of agriculture goes beyond agriculture as a sector and farmers as the rural population. It requires the integration of hardware and software, rural and urban, and collaboration of governments, businesses, and societal actors.

The recommendations are as follows:

- Increasing confidence and openness to using technology;
- Assisting farmers in how to utilize technology;
- Education and implementation need to happen simultaneously.

Education and Trainings

31.6% of the surveyed farmers have not participated in any type of training in the field of agriculture. This is quite a high rate and therefore they should be all involved, or at least invited to the training. The main recommendations and proposals for capacity building that we can do are to focus on education. Specifically, training agendas should be written for farmers to increase their engagement in sessions and introduce them to the full potential of digital devices. In other words, we must start our training from the very basic (bottom) digital topics to the top.

- Good agricultural practices

94% of the surveyed farmers do not use any type of farming applications, which in turn leaves great potential for training in this area. These training must improve farmers' skills and knowledge in areas such as planting techniques, irrigation, pesticides, crop rotation and crop storage after harvest. These skills enable farmers to improve yields, protect their crops against weather-related shocks, and better distribute their incomes year-round.

- E-commerce

Only 14.6% of surveyed farmers have a Google business profile. It is also rare to use online platforms such as Booking.com, Airbnb, LinkedIn and Agrogate.world. Opportunities to sell products online are untapped as well, as only 15.3% of surveyed farmers sell agri-food products online. Social media marketing on platforms such as Instagram, Facebook, YouTube and Pinterest should be actively promoted with the training.

- Farming as an inclusive business

These training must educate families about the benefits of inclusive family farming, such as empowering women to make purchasing decisions and learning good agricultural practices alongside their husbands. When women are also involved, farms operate more successfully and productively.



The language barrier is another problem for farmers. They cannot read, write, or speak in English. Most digital applications and software are understandable only in an international language. In the Georgian digital market, there are only a few mobile applications available.

There is also a growing interest in the topic of digital agriculture within policy circles, including the socio-economic elements of digitalization. This has resulted in several policymaker and practitioner-oriented publications.

In terms of training and education, a high level of support would be instrumental to the effectiveness of training. Support structures include:

- Discussion groups (as local as possible);
- Customer helplines through apps;
- Video training;
- Peer-to-peer groups/advice.

Increased support during training will have one of the most positive effects. Building on these recommendations, and as outlined, a core objective of this report is to identify the digital skills gaps and requirements for the sector. Based on the survey results and the structured and unstructured discussions with the various industry stakeholders we believe that increased trust in digital technologies and increased awareness of best practices, parallel with training conducted online or in real space will give us the result of developed agriculture and increased farm incomes in Georgia.

