**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**

**Faculty of Tropical AgriSciences**


# The Next Generation of Farmers: Assessing University Students' Views on Farming as a Career Path

BACHELOR'S THESIS

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# Declaration

I hereby declare that I have done this thesis entitled: The Next Generation of Farmers: Assessing University Students' Views on Farming as a Career Path independently, all texts in this thesis are original, and all the sources have been quoted and acknowledged by means of complete references and according to Citation rules of the FTA.

In Prague 14/04/2023

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Sofía Alexandra Bursic Milasevicius

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# Abstract

The agri-food industry, which is responsible for ensuring food security, plays a crucial role in the global economy and environment, particularly in addressing the challenge of feeding an increasing population while conserving natural resources. However, the question has been raised about how agriculture will be able to remain competitive and ensure enough food supply in the future. Subsequently, scientists and policymakers have acknowledged that the agri-food industry is at risk due to the lack of generational renewal, which is threatening the sustainability of agriculture, and this trend has been explained as the young farmer dilemma. This thesis examined the main factors contributing to the young farmer dilemma and the challenges faced by young farmers from a global perspective. The identified research gap is the absence of scientific research on the interest of international and national agricultural students in pursuing farming as a career. This study goes more in-depth by comparing the responses of Czech and international students to determine the main differences. The objectives were to address the interest of university students from the Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague, in becoming farmers and the factors that may have influenced their decision in pursuing farming as a career. A non-random sampling method was used. The survey was conducted among 130 students during November and December 2022. The data was analyzed statistically utilizing the Mann-Whitney U test, Chi-Square test, and the Ordered Probit Model. The main findings suggest that international students and students with farming experience showed a higher interest in farming compared to Czech students and those without farming experience. Czech students exhibited a greater degree of concern toward the prospect of failure in farming and were less motivated by economic success compared to international students. International students were less motivated by the lifestyle benefits of farming compared to Czech students. Females were less likely to express interest in farming compared to males, whereas students from an urban origin were less likely to consider farming as a career option. The findings of this research could provide valuable insights, which could assist in developing potential strategies to promote farming as a viable career option for students.



**Keywords**: Young farmer dilemma; generational renewal; young farmer challenges; agricultural students; international students; land access barrier.

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| | |
|---|---|
| CAP | Common Agricultural Policy |
| CULS | Czech University of Life Sciences Prague |
| EU | European Union |
| FTA | Faculty of Tropical AgriSciences |
| GR | Generational renewal |
| SDGs | Sustainable Development Goals |
| YF | Young farmer |
| YFD | Young farmer dilemma |

# 1. Introduction

Food security has become one of the greatest development challenges for humanity in the twenty-first century (Kuzmenko et al. 2022). According to the United Nations (2020), the global population is expected to increase to 9.8 billion by 2050, with youth accounting for about 13.8 % of this total. The youth cohort is projected to be gradually in decline if we analyze the projections from 2020 to 2050 (2020: 15.5 %, 2030: 15.1 %, and 2050: 13.8 %). However, the rate of population growth continues specifically high in the group of 47 countries designated by the United Nations as least developed. Predictions indicate that the youth cohort in sub-Saharan Africa will continue to grow and will possibly represent almost 30 % of the world's youth by 2050. The population of the least developed countries is growing 2.5 times faster than the total population of the rest of the world and this growing generation of youth has the potential to create a paradigm shift in sustainable development.

With a rapidly expanding population, there is a question of how to feed the world while preserving limited natural resources (Kuzmenko et al. 2022). Additionally, agricultural systems should shape the landscape and contribute to the overall environmental quality (Hlouskova & Prasilova 2020). According to Benus et al. (2021), the agri-food industry, which is responsible for guaranteeing food security, plays a significant role in the global economy of every nation. However, the youth cohort is expected to grow and employment and opportunities especially for youth living in developing countries remain economically stagnant (FAO 2014). Therefore, the agricultural sector must be protected to offer stable and long-term employment for future generations (Benus et al. 2021). In addition, most of the world's food in developing nations is produced by aging smallholder farmers. These older farmers are less likely to adopt new technologies required to sustainably increase agricultural productivity, protect the environment and, ultimately, feed the expanding global population, therefore, we must encourage youth to return to agriculture (FAO 2014).

At present, over 500 million people reside in the European Union (EU), and over 10 million people are employed in the agricultural industry. With around 30 % of the world's food production and 30 % of its agricultural output, the EU is the world's largest producer and exporter of agricultural goods. Numerous factors, including climate change, population shifts, technological advancements, and geopolitical concerns, will influence agriculture in the future. In this circumstance, it is essential to create a new generation of highly trained, innovative, and talented farmers to secure a sustainable food system in Europe (Milivojevic & Ignjatic 2022). Therefore, supporting the continuation of agriculture requires an understanding of the intricate process of generational renewal (GR). GR on European farms is in danger due to a confluence of social, economic, environmental, and institutional issues (Coopmans et al. 2021). One of the nine main goals outlined by the European Commission to direct legislative recommendations for the future Common Agricultural Policy (CAP) is to foster GR in agriculture (European Commission 2020). Scientists and policymakers have acknowledged that there is a young farmer dilemma (YFD) in Europe, which is based on the poor generational renewal rates in the farming sector. Moreover, The YFD has primarily been raised in the context of discussions about how European agriculture will be able to remain competitive and ensure enough food supply in the future in a globalized agricultural market (Eistrup et al. 2019).

For policy purposes, a young farmer (YF) is defined as "either a natural person under the age of 40 who starts or manages a holding and who exercises effective and long-term control over management decisions, profits, and financial risks, or a legal company owned majority by a young farmer". These YFs tend to be more open to innovation and more likely to learn new approaches to farming and business, so their absence threatens generation renewal and the sector's ability to compete (Pechrova et al. 2018). Moreover, YFs could lead to fundamental changes in the way farms are managed and in the agricultural industry as a whole and statistics show a relationship between YFs, farm productivity, and innovation that is beneficial (Eistrup et al. 2019). In addition, the YFs showcase higher entrepreneurial skills, knowledge, ambitions, values, and teamwork abilities (Coopmans et al. 2021). Furthermore, studies also emphasize the role that YFs play in promoting the adoption of sustainable agricultural practices and resource efficiency (Eistrup et al. 2019).

According to FAO (2014), in developing countries, there is a direct link between food security and education and it has been proven how basic numeracy and literacy skills help to improve farmers' livelihoods. The results of the study by Bucci et al. (2019) indicated that education level was found to be a significant factor affecting the adoption of new technology in farming. However, the increasing diversity of career options for younger generations can lead them to view agriculture as a secondary career choice in both Europe and Africa (Zmija et al. 2020).

According to Pechrova et al. (2018), the presence of entry challenges is one of the most significant variables contributing to the unwillingness of youth to farm. Therefore, this thesis aimed to explore the YFD and the main challenges faced by YFs from a global perspective. The main objectives of this thesis were to address the interest of university students from the Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague (CULS), in becoming farmers and the factors that may have influenced their decision in pursuing farming as a career. The research was conducted by an online survey using the non-random sampling method. The survey was conducted among 130 students of the FTA during November and December 2022. The data was then analyzed statistically utilizing the Mann-Whitney U test, the Chi-Square test, and the Ordered Probit Model to reveal the main findings.

# 2. Literature Review

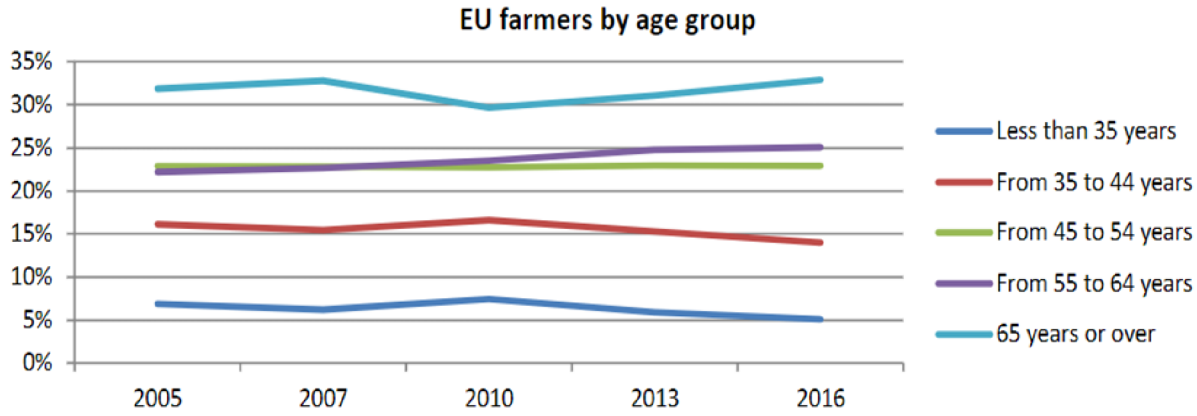
## 2.1. Seeds of change: The young farmer dilemma from a global perspective

This thesis aims to reflect on the YFD problem in Europe and from a global perspective by analyzing the main factors that contribute to this problem. Academic literature looks at how the influential consequences of Deagrarianization have led to the decline of family farming. Deagrarianization is the historical process of the diminishment of agriculture's role in a national economy and of limiting the importance of agriculture in rural residents' income. Deagrarianization usually results in land concentration being shifted to fewer farmers with larger farms by reducing small-holder farms which have effects on the reproduction of agrarian and land-based livelihoods (Bilewicz & Bukraba-Rylska 2021). However, many factors have contributed to the YFD in Europe and globally and this chapter will uncover the main ideas behind it.

### 2.1.1. Factors shaping youth engagement in agriculture

Which factors shape the likelihood of the choice to become a farmer? Research has shown that this decision is strongly influenced by family traditions and work experience on a farm. In fact, the most common entry into farming is through succession in both Europe and Africa (Zmija et al. 2020).

According to the European Commission (2019), the farming sector in the EU faces a significant challenge in attracting more young people to enter the field. In 2016, there were more than six farmers over 65 years old for every farmer under 35 according to the age composition of European farmers. Young farmers' share of the farming population has decreased over the past ten years, while the share of farmers over 55 has increased, which is demonstrated in **Graph 1**.

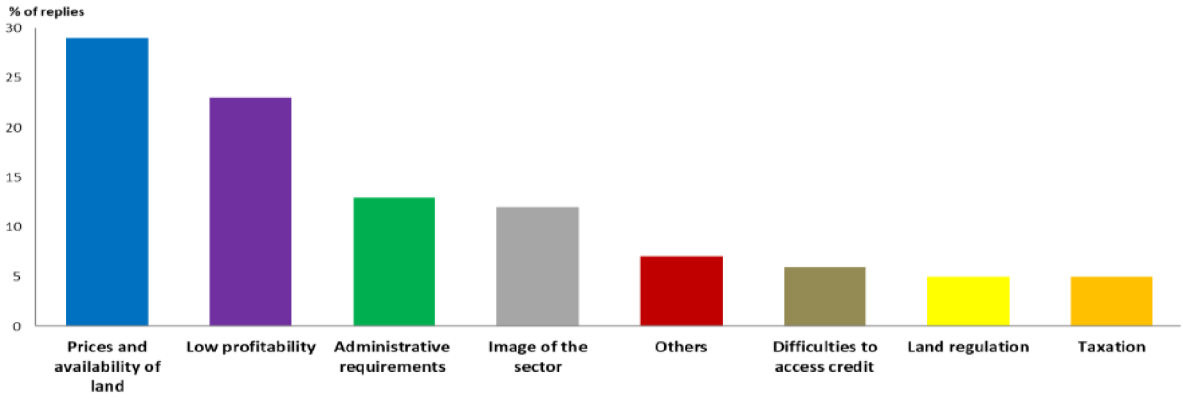



**Graph 1** EU farmers by age group, 2019
**Source:** European Commission (2019)

The need for young farmers to strengthen EU agriculture in the future is important (Bilewicz & Bukraba-Rylska 2021). According to Benus et al. (2021), economic growth and competitiveness of the agriculture sector rely on the integration of YFs, as results indicate that YFs lead to increases in production and more competitiveness. In addition, YFs have several qualities that can help revitalize agriculture, and they are more likely to be open to innovation and newer approaches to farming and business. In fact, studies recognize that young farmers have a higher tendency to increase the value of long-term goals for production by having newer ideas about business and by being more innovative (Badan & Fintineru 2022). Moreover, food insecurity challenges in the future are increasingly affected by limited resources of energy, water, and land. The YFD is not only related to food production, in Europe, it's also vital for retaining the population of rural areas and their success in economic development (Zmija et al. 2020). In addition, generational renewal in small farms affects the success of food security, especially for the developing world where 80 % of food consumed comes from. Nevertheless, the need for young farmers is significant and has an important role to play in strengthening EU agriculture in the near future (Bilewicz & Bukraba-Rylska 2021). In fact, research indicates that the key element in the development of the agricultural sector relies on the benefits from the improved integration of young farmers (Badan & Fintineru 2022).

Generational renewal in the farming sector is at risk due to a combination of factors. For example, the lack of interest is a major problem as many young people no longer see farming as an attractive profession (Rovny 2016). In addition, the unwillingness of young people to work in agriculture is related to beliefs that it does not provide opportunities for self-realization. The challenges of farming work in combination with a low social status have decreased the appeal of farming as a career choice (Zmija et al. 2020). According to Girdziute et al. (2022), attracting young people to engage in this sector with the highest risk indexes due to its hazardous use of chemicals, extended long working hours, and heavy physical labor, will require a shift from a negative stereotype into a dynamic more positive one. In addition, young people's career goals are increasingly more influenced by existing broader social and economic influences. However, the permanency of young people working in rural areas and creating economically viable farms impacts the sustainability of local economic development in rural areas, in addition to affecting agriculture and food production growth (Zmija et al. 2020). Furthermore, when agriculture functions as such a prominent contributing force in the development of the economy, by requiring a substantial labor force, and by providing food, vital sustenance for every society, it cannot hold a negative stereotype and attract youths (Girdziute et al. 2022).

In Africa, this divergence from farming is related to increased education and the rising aspirations of the younger generation. One study argued that a more "systematic understanding of young people's perspectives" needs to be utilized more in future policies (Sumberg et al. 2017). There is also a need to make agriculture work more appealing and dynamic (Girdziute et al. 2022). Young farmers depend on more emotional reasons for their way of life choices. Economic reasons are influential in making choices but so are personal attachments to nature and the prestige associated with farming (Kovach et al. 2022). However, socio-economic factors can also pose impediments to entering the farming industry such as lack of rural infrastructure, lack of credit, and difficult access to land (Badan & Fintineru 2022). The young farmer dilemma is also related to demographic evolutions that are not desirable in agriculture. However, the extent of this crisis of the YFs and how it relates to generational renewal is not fully clear (Coopmans et al. 2021). However, the EU has identified the main barriers to entry into farming shown in **Graph 2**, which helps to understand the intricate process of generational renewal (European Commission 2019).




**Graph 2** Main barriers to entry, EU 2017

**Source:** European Commission (2019)

### 2.1.2. The nexus between education and agriculture

The significance of education in the early years is crucial when current data reflects that only slightly more than 25 % of farmers possess education from formal institutions (Kovach et al. 2022). Moreover, research from Saudi Arabia found that over 50 % of farmers had no educational training regarding organic farming practices, production, and certification. However, the study found a high correlation between a positive perception of organic farming and farmers educated past high school and less than 40 years (Alotaibi 2020). In contrast, the increase in education for younger generations has led to wider career expectations, and consequently, agriculture work has resulted in "the fallback" position in both Africa and Europe (Zmija et al. 2020). This is especially a concern for developing countries where education is less developed in rural areas where tertiary education can provide valuable exposure and knowledge regarding agriculture. In addition, there is a positive correlation between the education of rural children and food security, and it has been shown that farmers' livelihoods are improved when they possess basic numeracy and literacy skills (FAO et al. 2014).

According to scientific literature, there is a nexus between education and agriculture while recognizing that education levels can influence young farmers' choices, innovation presents an opportunity for modernizing the sector and enhancing its attractiveness to the younger generations (Popescu 2019 & May et al. 2019).

For Instance, Girdziute et al. (2022) argued that if agriculture is viewed as a technologically advanced and innovative sector to be part of and start-up businesses can lead to "self-realization", then more youths will be attracted to this important field.

Furthermore, young farm families are influenced by being exposed to multifunctional farming environments based on innovative and sustainable practices. Multifunctional agriculture is related to providing functions such as environmental, social, and economic, which go beyond just food production. Nevertheless, the trend toward a multifunctional farming environment is driving family farms to adapt to diversity and adopt innovative and sustainable practices (Farrell et al. 2022).

### 2.1.3. Youth in agriculture: International insights

Young people have a significant role to play in farming on a global scale, especially concerning the challenges of food security. However, non-agricultural sectors or large-scale farming are more likely to captivate the interests of young people over small-scale farming prospects. From a global perspective, small-scale farming is beneficial in diverse ways for both developed and developing countries. In developing countries, small-scale farming is crucial for poverty reduction and providing greater food security. However, in developed countries, small-scale farming is beneficial in its role of retaining the population and increasing rural economic development (Zmija et al. 2020). The United Nations Agenda 2030 and the Sustainable Development Goals (SDGs) have highlighted the massive rural-urban migration as a worldwide concern. This mass exodus has created an uncertain future for sustainable agriculture (Foguesatto et al. 2020). In addition, in some countries such as Thailand where the whole population is aging, this contributes to the aging of the farmer population. This may lead to what is termed a "dormant" agriculture sector where the majority of farmers will be elderly. Despite the Thai government's efforts to support young farmers, these programs have been very limited (Filloux et al. 2019).

One study from Ghana reflected a positive correlation between economic factors for the undesirability of farming because of location issues and lack of services in rural areas (Sumberg et al. 2017). Cross-national research in the African nations of Kenya, Nigeria, and Uganda, studied the impact of youth agripreneurship skills.

This study evaluated the impact of early youth participation in the ENABLE-TAAT program, Empowering Novel Agribusiness-led Employment, to help curb youth unemployment and underemployment. This study concluded with significant findings of a positive correlation of high agri-entrepreneurship skills among participants to help their developmental capacity for future innovative agricultural objectives (Adeyanju et al. 2023). When analyzing factors that affect the exit from farming of young farmers in Turkey, the rise of unemployment, migration of young people, and an aging population are resulting in an economic contraction, which is seen in many countries in the world. However, Turkey's statistics from one study reflect a more severe problem than global statistics. For example, on a global scale, the youth unemployment rate is 11.9 %, but in Turkey, it`s 20.6 %. High unemployment indicates the most important factor causing this domestic migration. The lack of job opportunities and inadequate income in agricultural sectors leads to migration from rural to urban centers (Berk 2018). In the USA, land access was the number one reason farmers left farming work. In addition, land access is the number one challenge for aspiring farmers. Moreover, the cost of land is associated with the fact that the price of land usually exceeds the anticipated profits of a working farmer (NYFC 2022). Therefore, economic factors play a main role which leads to migration (Berk 2018). An African case study, from South Africa, found that improving the awareness of financial gains thru agricultural entrepreneurship lead to increased motivation among youth in perceiving the financial values of participating in the agricultural fields (Magagula & Tsvakirai 2020). Lastly, a study conducted in Australia about understanding young farmer suicide rates, which are 2.2 times higher than the general employed population, saw a crucial need to understand contributing factors to life conditions such as environmental, economic, and social within farming populations (Arnautovska et al. 2014).

## 2.2. Cultivating resilience: A global analysis of the challenges faced by young farmers

### 2.2.1. Global challenges

The global challenge for young farmers stems from a massive population increase which requires a need for increased agricultural productivity. However, older farmers are less likely to incorporate new techniques that are necessary to increase agricultural productivity (Eistrup et al. 2019). Young farmers today are challenged by things like strategic planning which ensures sales and dealing with administrative tasks related to subsidies (Pechrova et al. 2018). Other challenges for young farmers are related to external factors like economic instability, irregular income, and weather factors which all can lead to volatile working conditions. In addition, the remoteness and isolation associated with living in rural areas which lack the infrastructure of services make rural living a challenge for many farmers (Eistrup et al. 2019). A study from Ghana, Africa recognized the importance of locational issues and lack of services in rural areas as negative aspects of being a farmer (Sumberg et al. 2017). Nevertheless, food security and rural development are dependent on the contributions of smaller farms and younger farmers (Popescu 2019). In Europe, public policies such as The EU's Common Agriculture Policy help young farmers by providing funds to buy equipment and land. In addition, it trains both established farmers and new entrants in the latest technical production methods, by providing grants. However, even more, measures are needed to be installed to help young farmers through challenges (Rovny 2016). In addition, young farmers face numerous hurdles to entering the farming sector such as access to credit, access to land, high start-up fees, and the main challenge which is to develop an economically viable agriculture enterprise (Pechrova et al. 2018). Lastly, the production methods of corporate-controlled agricultural systems along with the global trade and market systems can have a negative impact on small farms that cannot compete (May et al. 2019). These smallholder farms have an important role in influencing social, economic, and ecological landscapes in all countries in addition to producing food (Korzenszky 2019). From a global perspective, young farmers face many hurdles to becoming a farmer in both the developed and developing world.

This chapter will aim to evaluate some of these principal challenges such as access to knowledge, information, and education, access to land, access to financial services, access to green jobs, access to markets, and engagement in policy dialogue.

### 2.2.2. Six principle challenges

#### 2.2.2.1. Access to knowledge, information and education

The first challenge to discuss is access to knowledge, information, and education which plays a crucial role in shaping young farmers to pursue a farming career (May et al. 2019). There is also an increasing level of being willing to adopt technology in relation to the level of education of farmers (Bucci et al., 2019). Other types of education such as vocational or extension services are valuable for rural youth to learn "capacity building" skills but do not always result in good employment options (Bennell, 2007). However, students with a diploma or degree were more probable to make use of computer technology in their farms compared to those with primary or middle school diplomas (Bucci et al. 2019). The lack of adequate education, information, and knowledge limits the student's skill set and productivity levels. It is of particular importance in developing countries and rural areas for women's access to education and agricultural skills to be increased (FAO 2014). In addition, research demonstrated a 25.6 % increase in production from farmers who had four additional years of education that engaged in recent technology. Education also provides crucial advantages in farming with enhanced access to information which helps farmers to be well informed and have a better ability to manage negotiating prices and selling farm goods. Lastly, education allows farmers to be better decision-makers and more skilled to analyze risks and benefits in farm production practices (Tran et al. 2023).

#### 2.2.2.2. The challenge of land

Access to land is the most notable challenge to young farmers. One research survey, from the EU in the Czech Republic, found the purchase of agricultural land as the highest-rated barrier to entering the agriculture sector (Pechrova et al. 2018). The availability of land is also a complication for EU young farmers and all new entrants who begin without the land need to overcome the lack of disposable land to become part of the farming sector (Pechrova & Simpach 2020).

The EU has the Common Agricultural Policy to help young people under 40 to buy land and offer many other services to encourage start-ups (CAP 2016). However, in other developing countries like Thailand support to help young people to access land and capital is limited (Salvago et al. 2019).

In many developing countries, land grabbing, "an inalienable livelihood asset and safety net in the global fight against hunger and abject poverty" is on the rise and it affects youths of developing economies' access to land. The dispossession of land in developing countries weakens their job opportunities and decreases their participation in farming which is their primary occupation. In Africa, the land is a key factor for food security and access to land must be improved for youths. The land grabbing from wealthy farmers and land developers in Africa is constraining land access for Sub-Saharan African Youths (Kumeh & Omulo 2019). As the largest source of employment for young people in Africa, agricultural employment in predominantly agrarian societies plays a critical role in food security and employment opportunities for rural youth (Moreda 2023).

#### 2.2.2.3. The challenge of financial services

A study from the EU in the Czech Republic researched the motivation and barriers of young farmers to enter the sector, finances were recognized as a main barrier to entry by 52.2 % of respondents (Pechrova et al. 2018). According to FAO (2022), in developing areas such as Sub-Saharan and Asia Pacific, a very high percentage of youths work in agriculture, and these youth represent a "pool" of potential for future economic development depending on an enabling environment to encourage agribusiness to become profitable opportunities for youth entrepreneurs. These areas currently have low levels of rural transformation. However, with the development of better support services to address the financial needs of rural youths, more economic opportunities will result. Financial inclusion is also a challenge because a high percentage of youths 65 % do not have a formal financial account. Many youths use informal financial services which are more expensive, less flexible, and have fewer options compared to formal financial institutions. There is also a challenge because young people currently have a "low appeal" to financial institutions which limits their capacity to engage with financial institutions and take advantage of the services offered. Age restrictions in developing countries are also a challenge to the capacity of young people to engage with financial institutions.

Young people also face challenges in discriminatory laws on property rights and the use of collateral as a guarantee for a formal loan. There is also a challenge for youths to have the financial capabilities to be able to manage financial services and develop a business into a tangible goal (Benni et al. 2022).

However, there is often a dependency on family and friends to access needed resources to begin income-earning opportunities in Africa. It is not clear if the productivity of activities has been affected by resource availability to support economic activities (Yeboah et al. 2020).

#### 2.2.2.4. The challenge of green jobs

In both developed and developing countries the creation of Green Jobs will provide opportunities for youth (FAO 2014). However, the challenge in Green growth is the probability of either creating or destroying employment in the process. The new green technologies require more highly skilled workers and the possibility of a reduction of jobs. Having employees that are less skilled or capable is viewed as a barrier to investing in new energy-saving green technology (Mondejar et al. 2021). Rural youths may not possess the necessary skills or have access to appropriate training or education to match the Green jobs (FAO 2014). The increase in new technologies can have a negative impact on employment if labor savings result in the substitution of employees for capital (Mondejar et al. 2021). The challenge to achieving a greener and more sustainable development in the farming sector may depend on improving the education and training of youths to match the technological capabilities required for Green Jobs (FAO 2014).

#### 2.2.2.5. The challenge of markets

The future of global agricultural success depends on rural youths' market access which is pivotal to boosting income, increasing productivity, and in the process working to decrease hunger and poverty issues (FAO 2014). Young farmers can become more business oriented and play a part in all links of the value chain from producing to marketing practices (MIJARC et al. 2012). However, the young farmer faces a myriad of challenges while trying to access markets. Due to the effects of globalization, such as the demand for higher value and more processed foods, in addition to the massive increase in supermarkets, the procurement system has been altered with new safety and quality standards (FAO 2014).

Youths are challenged to counter these global food marketing systems with limited education and knowledge of how these market standards function (MIJARC et al. 2012). Large farm producers are favored over small-scale farmers who cannot keep up with high standards, volume, diversity of products, and quality.

Another challenge for youths is the lack of economic power in market chain processes and a lack of organization in sufficiently dealing with intermediaries actors. Lastly, young farmers pursuing entrance in high value and niche market chains, including many women farmers, are challenged by the need and cost to certify products by a globalized recognized certification process requirement in addition to the cost of promotional and branding costs (FAO 2014).

#### 2.2.2.6. The challenge of policy dialog

Policy dialog functions as a positive linkage to youth inclusivity and a better probability of youth positively contributing to the framework of future agricultural food systems. The main challenge is to increase the understanding of youths' image of themselves and their important role in the agricultural system which is a valuable area of future economic growth. There is also a need to increase the quality of youth participation in policy formation that takes into account "youth aspirations" and also includes "human capital shortcomings", due to a lack of adequate education and job training opportunities (Geza et al. 2021). However, other challenges are formed by cultural influences such as hierarchical relationships and gender discrimination. In addition, honorific positions in organizations with advantageous financial influence are not relinquished easily, and defined structural retirement plans for leaders are lacking, leaving very difficult access for new young farmers to become leaders by replacement (MIJARC et al. 2012). Additionally, current policies will be challenged to make a significant effort to account for the heterogeneity of youth and to meet their complex and multifaceted needs (FAO 2014). Lastly, the engagement of youth in increased policy formation rules will challenge a wide range of global levels of institutional governance to work together to promote the inclusion of young farmers in transforming a global food system (HLPE 2021).

# 3. Aims of the Thesis

***Main objective***

This thesis aims to investigate the interest of university students from the Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague, in becoming farmers and the factors that may influence their decisions.

***Specific objectives***

1. To determine the interest level of university students at the Faculty of Tropical AgriSciences in becoming farmers.
2. To evaluate the factors that limit or increase their motivation for becoming a farmer.

***Research questions***

1. Are students from the Faculty of Tropical AgriSciences interested in pursuing farming?
2. Are international students more interested in farming compared to Czech students?
3. What factors influence students' interest to become farmers in the future?
4. Are students interested in sustainable farming practices?
5. What factors are perceived as limitations for students to become farmers?
6. What factors are perceived as the most influential in encouraging students to become farmers?

***Hypotheses:***

This study hypothesized that international students will demonstrate a greater inclination towards pursuing farming as a career option than Czech students.

- $HA_1$: There is a relationship between interest in farming and country of origin
- $H0_1$: There is no relationship between interest in farming and country of origin

Moreover, it is hypothesized, that students who have already experience working on a farm are more interested in farming careers in the future compared to those who are not experienced.

- $HA_2$: There is a relationship between interest in farming and work experience on a farm
- $H0_2$: There is no relationship between interest in farming and work experience on a farm

# 4. Methods

## 4.1. Research location: Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague

### 4.1.1. General characteristics

The Faculty of Tropical AgriSciences at the Czech University of Life Sciences Prague is a unique institution with 60 years of educating students and conducting research in the fields of tropical agriculture, rural development, and sustainable natural resource management. The faculty shares a mission to provide higher education to both international and Czech students and to conduct research and development in tropical life sciences. Additionally, the FTA aims to be an outstanding institution in the Czech Republic that promotes the transfer of knowledge and technology between the European Union, and tropical regions of the global south. Furthermore, the faculty's vision is to respect traditional values and take into account the socio-economic and technological development of local communities in developing countries. Moreover, the faculty provides the space to develop self-empowerment and allow students to fulfill their passions and ambitions (CZU Faculty of Tropical AgriSciences 2021).

Today, the faculty has four departments and 659 students, with about one-third being international students. It offers bachelor's, master's, and doctoral programs taught in English, and has a strong focus on practical training and research projects in tropical and developing countries. The faculty's research focuses on the sustainable management of natural resources, including soil, water, and biodiversity, as well as on food security and rural development (CZU Faculty of Tropical AgriSciences 2021).

This thesis specifically focused on the interest of students from the Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague becoming farmers in the future and the factors that influenced their decisions. This group of students was chosen as the target group since they have received education in agriculture, rural development, and sustainable natural resource management. They have been equipped with the knowledge and skills necessary to pursue a career as a farmer and make meaningful contributions to the field of agriculture.

Furthermore, the target group was selected due to its diverse student population, which includes both Czech and international students. This factor was viewed as an interesting factor to explore concerning the student's interest in becoming farmers.

## 4.2. Data collection

The research utilized freshly gathered data obtained during November and December 2022. To gather the appropriate information, a comprehensive study of existing literature was conducted to pinpoint research questions and areas that required further exploration. The survey method was employed to gather quantitative data. The questionnaire structure was created based on literature that focuses on the challenges faced by young farmers in Europe, the need for generational renewal in the farming sector, and the potential and appeal of the farming industry. The construction of the questionnaire was greatly shaped by the articles of Eistrup et al. (2019), Pechrova et al. (2018), and Coopmans et al. (2021).

The survey was conducted among students at the Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague. To ensure clarity, a pilot group of 16 students was used to verify the English questionnaire, leading to only minor modifications.

Before participation, the students were briefed on the survey's objectives and given explicit instructions on how to complete it. The survey was administered online via Google Forms, and students were invited to participate via various channels, including Gmail, Facebook, WhatsApp, and in-person invitations.

### 4.2.1. Sample size and selection

The study's target audience was comprised of students from the Faculty of Tropical AgriSciences at the Czech University of Life Sciences Prague. In this study, a non-random and voluntary sampling method was employed for the final survey due to the unavailability of a comprehensive list of students, as prohibited by EU laws. The survey was conducted in two stages, utilizing purposive sampling as the initial stage, which involved the direct dissemination of the questionnaire via email to all students of the faculty by the study department of the FTA.

Subsequently, snowball sampling was utilized, as students were encouraged to share the questionnaire with their classmates. As a result, the selected sample may not accurately represent the population statistically. Despite the limitations of this method, it was deemed the most appropriate due to the limited access to respondents, as well as the reliance on local academic staff during the survey. It is important to keep in mind the potential for biased results when evaluating the statistical representativeness of the findings.

The total number of respondents was 130, which were utilized in the subsequent data analysis. A comprehensive explanation of the data-cleaning procedure can be found in section 4.3.

Based on the calculated sample size, the response rate was 20 % of the total number of 659 students enrolled at the Faculty of Tropical AgriSciences in 2021. **Table 1** displays the distribution of students based on their degree level (CZU Faculty of Tropical AgriSciences 2021).

**Table 1** Number of students in the Faculty of Tropical AgriSciences in 2021

| Degree (type of study) | Number of students |
|---|---|
| Bachelor's studies | 340 |
| Master's studies | 213 |
| Doctoral studies (in person) | 100 |
| Doctoral studies (combined) | 6 |
| **TOTAL** | 659 |

**Source:** CZU Faculty of Tropical AgriSciences (2021)

### 4.2.2. Questionnaire structure

The questionnaire design for this study was informed by relevant literature in the field. It consisted of 25 questions, primarily composed of multiple-choice, open-ended format, but also included some closed-ended questions and ranking-type questions.

The survey utilized multiple-choice questions as a means of gathering data. Respondents were presented with a list of predefined options and asked to select the answer that best applied to them.

In addition to the multiple-choice questions, the survey also included open-ended text questions to allow for a more diverse range of answers. This type of question provides respondents with a text box where they can type in a response in their own words, offering more flexibility and in-depth insights.

The survey also employed closed-ended questions and ranking-type questions to gather more specific information and to understand the respondents' priorities and opinions. These question types complemented the multiple-choice and open-ended text questions, offering a well-rounded examination of the research topic. The use of a diverse range of question types in the survey ensured a comprehensive examination of the research.

In this thesis, the level of agreement/disagreement with various statements was assessed through questions utilizing a five-point Likert scale, where 1 represented "Strongly agree," 2 indicated "Agree," 3 signified "Somewhat agree," 4 stood for "Do not agree," and 5 represented "Disagree." Additionally, another set of questions aimed to measure participants' preferences, using a three-point scale with 1 meaning "Definitely consider," 2 signifying "Might or might not consider," and 3 representing "Would not consider.

Additionally, the participants were asked three ranking questions to evaluate various topics. The first question used a ten-point scale, where 1 represented "Not interested at all" and 10 signified "Highly interested." The second-ranking question also utilized a ten-point scale, with 1 being equivalent to the present and 10 to the future in terms of years. The third question aimed to gauge participants' preferences, using a ten-point scale where 1 indicated preference for being a farmer and 10 represented a preference for paid employment. The complete versions of the questionnaire can be found in the appendix section of the thesis.

In this research, a total of 25 questions were carefully crafted and grouped into four distinct sections to encompass the following areas:

***Personal information*:** This section of the survey aimed to gather information about the students' basic personal details such as their gender, age, marital status, country of origin, and education. This information would provide a general understanding of the demographic profile of the respondents and help in drawing meaningful implications about their background.

***Farming experiences:*** This section was designed to capture the students' hands-on experiences in farming, such as their exposure to different farming practices, their involvement in farming activities, and if any of their family members own a farm. This information would help in evaluating their practical experience in farming and background in agriculture.

***Life expectations:*** This section of the survey aimed to understand the aspirations and goals of the students, especially regarding life satisfaction and future life expectations. Questions in this section were framed to gather information about their plans, their expectations for their job, and their interest in the farming industry. This information would provide valuable insights into their motivations for pursuing farming as a career.

***Pursuing farming:*** The final section of the survey was focused on understanding the factors that influence the respondents' decision to pursue farming as a career. Questions in this section were aimed at exploring the students' limitations and motivations. This information would provide valuable insights into the factors that drive students to pursue farming as a career.

## 4.3. Data analysis

The data was organized and analyzed with the use of statistical software IBM SPSS Statistics 23 and Microsoft Excel Office 365.

***Cleaning of data***

Before analyzing the data, it was necessary to clean the coded dataset to minimize the risk of biased results. The following factors were considered during the data-cleaning process:

1. Elimination of instances that did not meet specific criteria.
2. Detection and handling of unusual cases.

Firstly, instances that failed to comply with the established conditions were eliminated from the dataset:

- Less than 42 years old
- Currently studying at The Faculty of Tropical AgriSciences at the Czech University of Life Sciences Prague

The decision to include respondents up to 42 years old was made to focus specifically on individuals who are commonly associated with the age range of young farmers. This age range is generally defined as between 18 and 45 years old, and by limiting the study to respondents under 42 years old, the analysis could be more closely targeted to the interest of students in pursuing farming as a career and becoming a young farmer in the future.

All cases underwent a review to identify potential outliers or unusual responses. The process illustrated in **Figure 1** was used to handle any outliers that were identified. As the questionnaire obligated responders to fill in all answers, no missing values were assessed. However, one case was excluded from the data set due to the individual's age exceeding 42 years old.

Following this data-cleaning process, the final dataset was comprised of 129 valid cases, which were subsequently used for analysis.

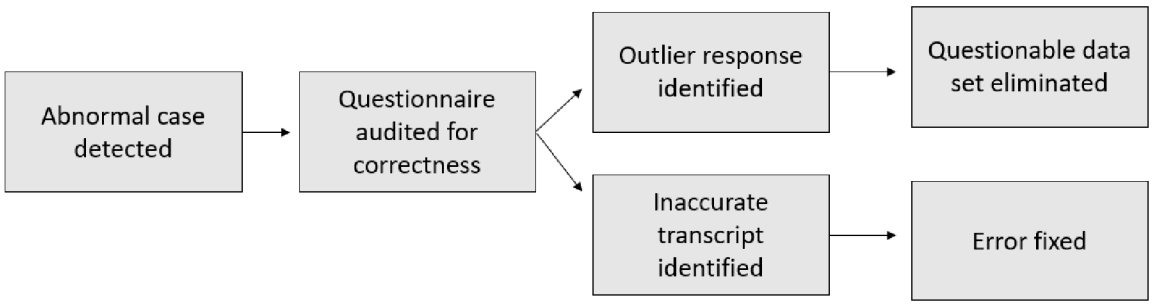



**Figure 1** Stages in the procedure: managing outliers

**Source:** Author (2023)

### 4.3.1. Descriptive statistics

The exploratory data analysis stage was categorized into three components:

- Description of the demographic characteristics of the sample
- Evaluation of farming interest and experience among respondents
- Analysis of the limitations and motivations for becoming a farmer

Description of the demographic characteristics of the sample included details such as the age range, gender distribution, and place of origin. Furthermore, the evaluation of farming interest and experience among respondents contained information about their interest in farming, experience with farming, and farming family background. Finally, the analysis of the limitations and motivations for becoming a farmer examined the perspectives of the participants regarding their main motivations and limitations for becoming a farmer.

### 4.3.2. Pearson chi$^2$ test of independence and Mann-Whitney test

The Mann-Whitney test was used to analyze the relationship between students' interest in becoming a farmer across their nationality (Czech or international). Additionally, it was used to assess the relationship between students' interest in farming and their previous farming experience and farming family background.

Mann-Whitney U test can be used when variables are not normally distributed. The assumption of normality was tested by Shapiro-Wilk (Shapiro & Wilk 1965). The test results revealed that the data was not normally distributed (statistic = 0.732, p=0.001).

Moreover, the Chi-square test of independence (Pearson 1900) and Fisher exact (Fisher 1922) test were employed to analyze the relationship between limitations and motivations perceived by students across nationality (Czech or international) (Ugoni & Walker 1995). When the expected frequency was lower than five Fisher exact test was used.

### 4.3.3. Ordered probit model

An ordered probit model was utilized to analyze factors that influence university students to pursue a career in farming.

The ordered probit model was applied in the following form:

$$Y_{ik} = \beta_1 x_i + \varepsilon_i \qquad (1)$$

where $x_i$ represents a set of all explanatory variables presented in subchapter 4.3.4., $\beta_1$ is a vector of estimated parameters, and $\varepsilon_i$ is an error term. $Y_{ik}$ is an ordered dependent variable where y=1 when the respondent shows low interest (score of 1-4 on the Likert scale), y=2 when the respondent shows medium interest (score of 5-6 on the Likert scale), and y=3 when respondent shows high interest (score of 7-10 on the Likert scale).

***Variables used in model***

Dependent and independent variables, expressed in **Table 2**, were selected based on the previous studies conducted worldwide (Filloux et al. 2019; Salvago et al. 2019; Can & Engindeniz 2020; Bednarikova et al. 2016; European Commission 2015).

**Table 2** Dependent and independent variables used in the ordered probit model

| | **Description of variable** | **Frequency** |
|---|---|---|
| *Dependent variable* | | |
| Expectation of becoming a farmer | High interest (score 7-10 on the Likert scale) = 1 | 46 |
| | Medium interest (score 5-6 on the Likert scale) = 1 | 23 |
| | Low interest (score 1-4 on the Likert scale) = 1 | 60 |
| *Independent variables* | | |
| Gender | (Female=1) | 77 |
| | (Male=0) (reference) | 52 |
| Czech or international origin | (Czech=1) | 73 |
| | (International=0) (reference) | 56 |
| Rural-urban classification | (Urban=1) | 79 |
| | (Rural=0) (reference) | 50 |
| Experience in farming | (Yes=1) | 63 |
| | (No=0) | 66 |
| Family background in farming | (Yes=1) | 60 |
| | (No=0) | 69 |
| Students degree program | Bachelor (yes=1, no=0) | 67 |
| | Master (yes=1, no=0) | 39 |
| | Ph.D. (reference) (yes=1, no=0) | 23 |
| What influenced you to study agriculture? | Personal interest (yes=1, no=0) | 102 |
| | Friends (yes=1, no=0) | 13 |
| | Family experience (yes=1, no=0) | 21 |
| | School experience (yes=1, no=0) | 25 |
| | After-school experience (reference) (yes=1, no=0) | 39 |

**Source:** Author (2023)

The scientific literature in the field was consulted to define the variables, and the following statements influenced the survey questions.

***Expectation*:** "Either as the plans, they have given the resources available to them or their hopes or dreams" (Filloux et al. 2019).

***A farmer:*** "The term 'farming' means being the owner of the farm capital and being involved in making decisions concerning the farm, either independently or as part of a group, in particular the family" (Filloux et al. 2019).

***Gender:*** According to Phiri et al. (2022) "Gender is a social construct that refers to the culturally determined set of norms, behaviors, activities, and attributes that a particular society considers appropriate for men and women, based on their differing roles, responsibilities, and relationships within the society, taking into account factors such as social group, age, education, and marital status".

***Rural-Urban classification:*** "Based on population density, characteristics related to urban function, such as the absence of agricultural land or employment, sometimes factor into urban definitions" (Wineman et al. 2020).

***Experience:*** "Learners create new knowledge by transforming the meaning they constructed from earlier experiences into new actionable knowledge" (Parr & Trexler 2011).

***Family background in farming:*** "Having a family-owned farmland" (Can & Engindeniz 2020).

***What influenced you to study agriculture?*** The question was formulated from the perception that: "Young people who are interested in agricultural education at the university will have more potential to be interested in agriculture after graduation" (Can & Engindeniz 2020).

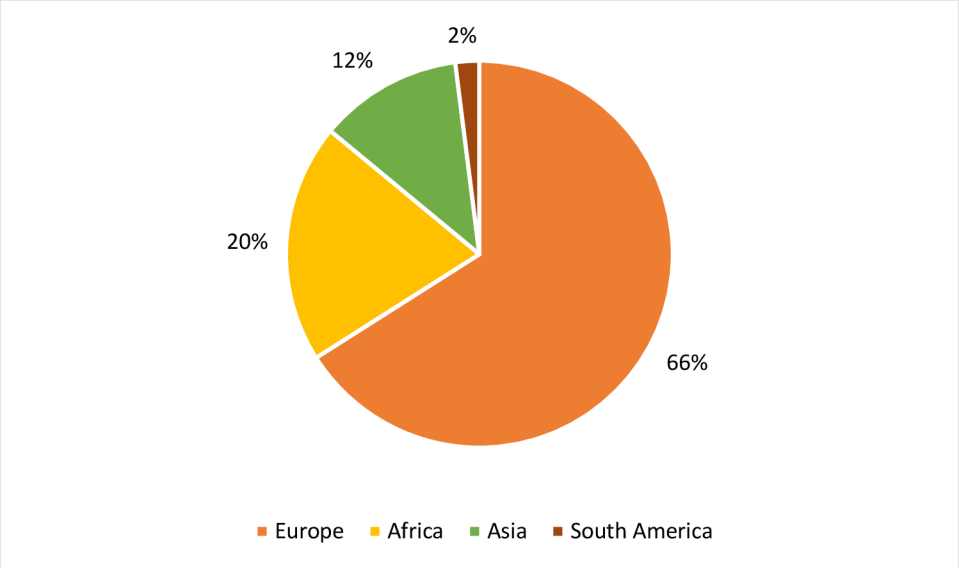
# 5. Results

## 5.1. Descriptive statistics

### 5.1.1. Description of the demographic characteristics of the sample

This section presents a comprehensive overview of the demographic characteristics of the respondents who participated in the data analysis. Female participants were more prevalent in the survey, accounting for 60 % of the total sample. The mean age of the respondents was 25 years, with a significant portion of 47 % of respondents falling within the age range of 20-23 years old.

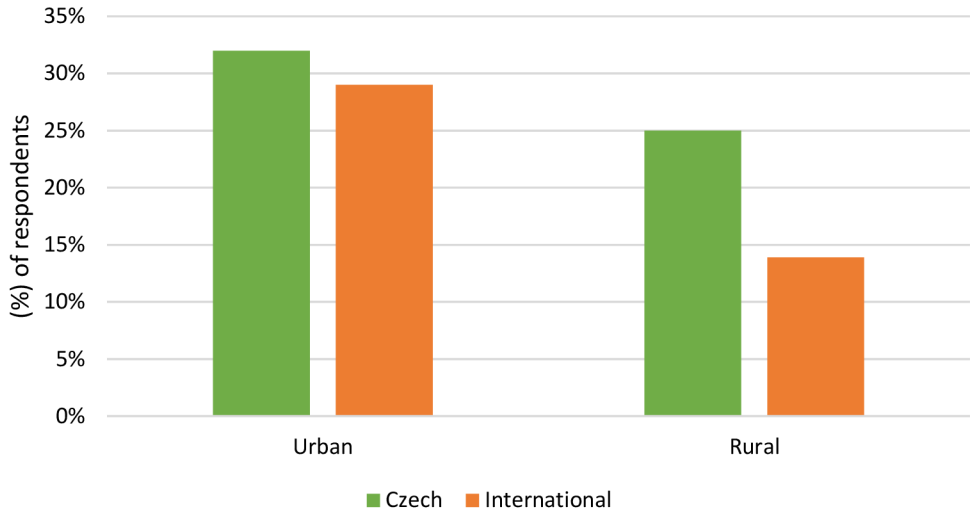
The survey was predominantly completed by Czech university students, who accounted for 57 % of the total respondents, while international students constituted for 43 %. **Graph 3**, illustrates the distribution of students across continents worldwide, expressed as a percentage of the total respondents.




**Graph 3** Distribution of students across continents worldwide

**Source:** Author (2023)

The results indicate that most of the students who participated in the study grew up in urban environments, accounting for 61 % of the total respondents. In **Graph 4**, it is notable that Czech students' responses were dominated by urban upbringing, and a higher proportion of Czech students grew up in rural settings compared to international students.




**Graph 4** Czech and international students across rural-urban classification

**Source:** Author (2023)

### 5.1.2. Evaluation of farming interest and experience among respondents

The results suggest that a majority of the students 46 % present low-level interest in pursuing a career as a farmer. However, 36 % of the respondents reported a high level of interest in farming. Most students expressed interest in farming as a hobby 58 %, followed by part-time interest 35 %, community farming 25 %, full-time farming 16 %, and a small proportion reported no interest in farming 12 %.

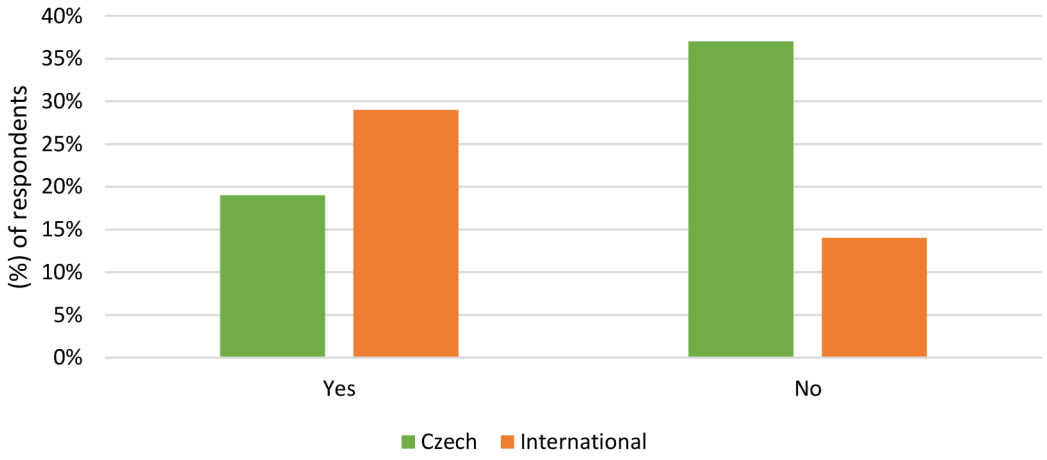
The results of the Mann-Whitney U test presented in **Table 3** show that there is a relationship between the country of origin and interest to be a farmer (U =1274, p=0.001), confirming hypothesis $HA_1$.

**Table 3** Relationship between the country of origin and interest to be a farmer – results of Mann- Whitney U test (N=129)

| | | Interest in becoming a farmer | | | | |
|---|---|---|---|---|---|---|
| | | low | medium | high | Mann-Whitney U test | p-value |
| Country of origin | International | 25.00 % | 52.20 % | 63.00 % | 1274 | <0.001 |
| | Czech Republic | 75.00 % | 47.80 % | 37.00 % | | |

**Source:** Author (2023)

The study found that over half of the students, 51 % had no prior experience working on a farm. However, nearly half 49 % reported having some form of experience with farming and volunteering being the most common form of experience 31 %. Additionally, **Graph 5** illustrates that international students had more experience with farming compared to Czech students.




**Graph 5** Czech and international students across experience working on a farm

**Source:** Author (2023)

The results of the Mann- Whitney U test presented in **Table 4** show that there is a relationship between work experience on a farm and interest in becoming a farmer (U =1198, p=0.001), confirming hypothesis $HA_2$.

**Table 4** Relationship between work experience on a farm and interest in becoming a farmer – results of Mann - Whitney test (N=129)

| | | Interest in becoming a farmer | | | | |
|---|---|---|---|---|---|---|
| | | low | medium | high | Mann-Whitney U test | p-value |
| Experience working on a farm | No | 66.7 % | 12.1 % | 21.2 % | 1198 | <0.001 |
| | Yes | 25.4 % | 23.8 % | 50.8 % | | |

**Source:** Author (2023)

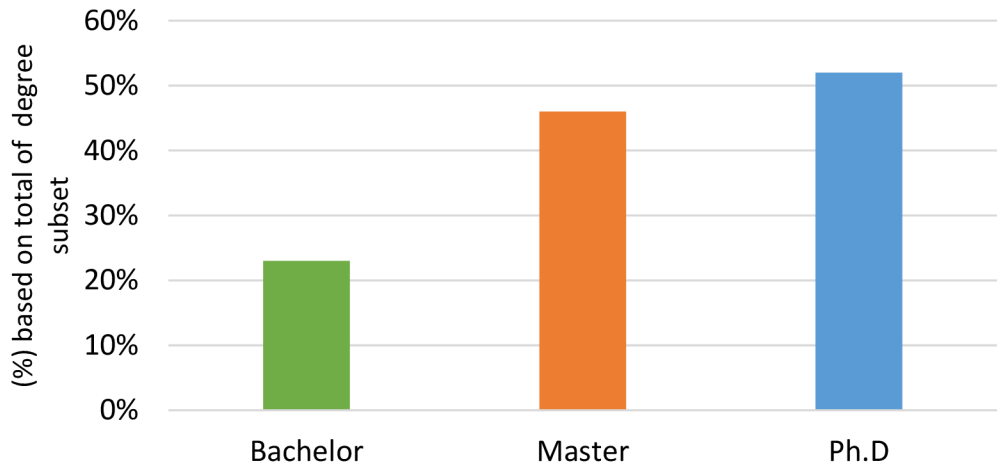
The results of the Mann- Whitney U test presented in **Table 5** show that there is a relationship between farming family background and students' interest to become a farmer (U =822, p=0.031).

**Table 5** Relationship between farming family background and students' interest in becoming a farmer – results of Mann - Whitney test (N=129)

| | | Interest in becoming a farmer | | | | |
|---|---|---|---|---|---|---|
| | | low | medium | high | Mann-Whitney U test | p-value |
| Farming family background | no | 90.00 % | 87.00 % | 73.90 % | 822 | 0.031 |
| | yes | 10.00 % | 13.00 % | 26.10 % | | |

**Source:** Author (2023)

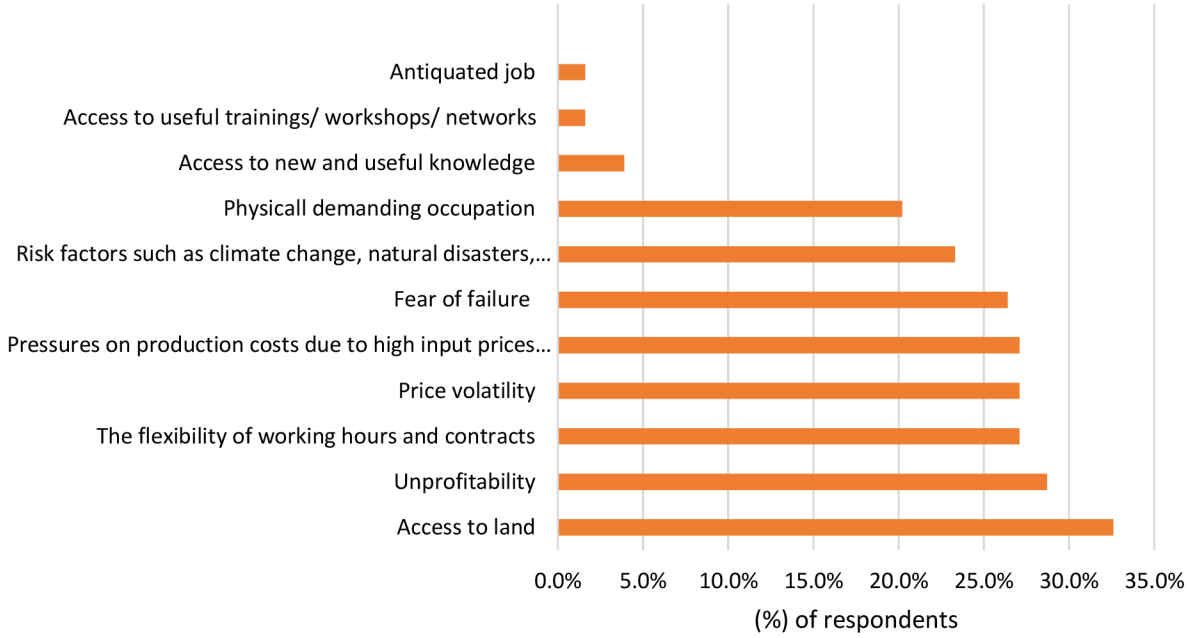
Bachelor students were the most prevalent group in the survey, comprising 52 % of the respondents, followed by master's students 30 %, and Ph.D. candidates 18 %. In **Graph 6**, Ph.D. students showed the highest interest in becoming a farmer, even though they accounted for 18 % of the total respondents. However, bachelor students which dominated the survey 52 %, showed less interest in becoming a farmer.




**Graph 6** Student's degree program across a high level of interest in becoming a farmer
**Source:** Author (2023)

### 5.1.3. Analysis of the limitations and motivations for becoming a farmer

The results in **Graph 7** specify the factors that limit students' motivation to choose farming as a career path. Access to land was the primary factor limiting the motivation of the majority of students towards becoming farmers, with 33 % of the respondents selecting this factor. Unprofitability was the second most commonly cited factor, with 29 % of respondents indicating this as a barrier.




**Graph 7** Factors that limit students' motivation to choose farming as a career path

**Source:** Author (2023)

The results of the Chi-square tests presented in **Table 6** show that there is a relationship between the country of origin and perceived limitations (The need for integration within the agricultural chain, $\chi^2$ =3.151, p=0.076; Unprofitable, $\chi^2$ =7.694, p = 0.006; Fear of failure, $\chi^2$ =7.429, p = 0.006). Czech students exhibit a greater degree of concern toward the prospect of failure compared to international students.

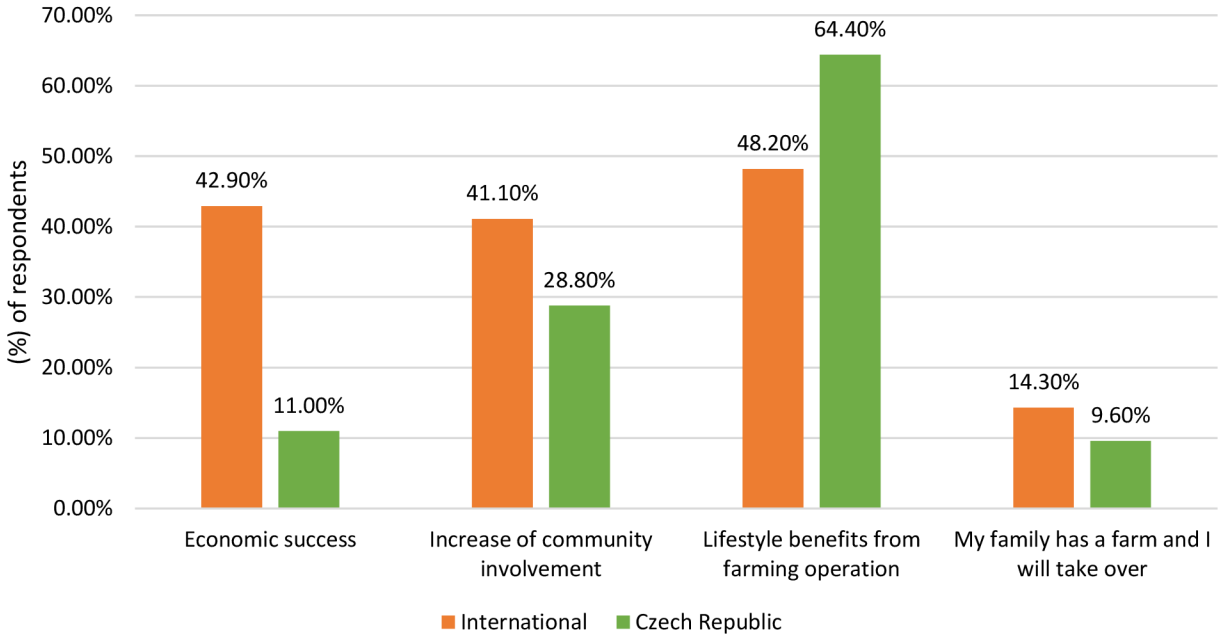
**Table 6** Relationship between the country of origin and perceived limitations to become a farmer – results of Pearson Chi2 test of independence and Fisher exact test (N=129)

| | International | Czech Republic | Pearson $chi^2$ test | p-value |
|---|---|---|---|---|
| Increased competition in the markets | 21.40 % | 17.80 % | 0.266 | 0.606 |
| **The need for integration within the agricultural chain** | **7.10 %** | **17.80 %** | **3.151** | **0.076** |
| The diminishing attractiveness of the sector as a farmer | 16.10 % | 16.40 % | 0.003 | 0.955 |
| The flexibility of working hours and contracts | 21.40 % | 31.50 % | 1.628 | 0.202 |
| Food security and globalization | 14.30 % | 12.30 % | 0.106 | 0.745 |
| Price volatility | 23.20 % | 30.10 % | 0.768 | 0.381 |
| Pressures on production costs | 23.20 % | 30.10 % | 0.768 | 0.381 |
| Resource efficiency | 16.10 % | 9.60 % | 1.226 | 0.268 |
| Soil and water quality | 10.70 % | 12.30 % | 0.08 | 0.777 |
| Threats to habitats and Biodiversity | 10.70 % | 11.00 % | 0.002 | 0.965 |
| Access to land (buy or rent) | 32.10 % | 32.90 % | 0.008 | 0.93 |
| Lack of subsidies and credits | 17.90 % | 15.10 % | 0.181 | 0.671 |
| Lack of qualified labor | 12.50 % | 12.30 % | 0.001 | 0.977 |
| Access to machinery | 17.90 % | 19.20 % | 0.037 | 0.848 |
| Access to new and useful knowledge | 1.80 % | 5.50 % | 1.16 | 0.281 |
| **Unprofitable** | **16.10 %** | **38.40 %** | **7.694** | **0.006** |
| Access to useful training/ workshops/ networks | 1.80 % | 1.40 % | 0.036* | 0.85 |
| Antiquated job | 0.00 % | 2.70 % | 1.558 | 0.505 |
| Physically demanding occupation | 16.10 % | 23.30 % | 1.025 | 0.311 |
| Risk factors (climate change, natural disasters, pests) | 25.00 % | 21.90 % | 0.169 | 0.681 |
| **Fear of failure** | **14.30 %** | **35.60 %** | **7.429** | **0.006** |
| It's not in my interest to be a farmer | 16.10 % | 27.40 % | 2.333 | 0.127 |

**Note:** *Fisher exact test was used instead Pearson $chi^2$ test; Degrees of freedom = 1

**Source:** Author (2023)

The top-ranked factor motivating students to become farmers is the lifestyle benefits of the farming operation, with a total of 57 % of respondents selecting this option. The second highest-ranked factor was an increase in community involvement, selected by 34 % of total respondents. The results also revealed that the factors with the least motivational impact were economic success 25 %, not being interested in farming 23 % and taking over a family farm 12 %. **Graph 8** demonstrates the specific distribution of motivational factors that encourage students from both Czech and international origins to choose farming as a career path.




**Graph 8** Motivational factors that encourage students to choose farming as a career path across Czech and international origin

**Source:** Author (2023)

The results of chi-square tests presented in **Table 7** show that there is a relationship between the country of origin and motivation towards becoming a farmer (Economic success, $\chi^2$ =17,287, p=0.001; Lifestyle benefits from the farming operation, $\chi^2$ =3,388, p = 0.066). Czech students seem to be less motivated by economic success compared to international students whereas international students seem to be less motivated by lifestyle benefits from the farming operation.

**Table 7** Relationship between the country of origin and perceived motivation to become a farmer – results of Pearson Chi2 test of independence (N=129)

| | International | Czech Republic | Pearson $chi^2$ test | DF | p-value |
|---|---|---|---|---|---|
| **Economic success** | 42.90% | 11.00% | 17.287 | 1 | **0.001** |
| Increase of community involvement | 41.10% | 28.80% | 2.135 | 1 | 0.144 |
| **Lifestyle benefits from the farming operation** | 48.20% | 64.40% | 3.388 | 1 | **0.066** |
| My family has a farm and I will take over | 14.30% | 9.60% | 0.68 | 1 | 0.409 |

**Source:** Author (2023)

In addition, the findings demonstrate that students exhibit a strong interest in sustainable farming practices, such as organic agriculture, with 55 % of the respondents expressing interest. Agroforestry was also a popular choice, with 43 % of the students expressing interest. A smaller proportion of students reported interest in developing their sustainable approach 26 % and regenerative agriculture 22 %.

## 5.2. Results of ordered probit model

The results of the ordered probit model analysis shown in **Table 8** revealed that farming experience, gender, and area (rural/urban) influence students' intention to become a farmer in the future. Specifically, students with farming experience were more interested in farming compared to students without experience. Additionally, students from urban areas and females were less interested in farming compared to males and students from rural areas.

**Table 8** Results of ordered probit model

| | Estimate | Std. Error | p-value | 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| **Female** | **-0.653** | **0.259** | **0.012** | **-1.161** | **-0.144** |
| Czech students | -0.347 | 0.278 | 0.213 | -0.892 | 0.199 |
| **Urban area** | **-0.467** | **0.240** | **0.051** | **-0.938** | **0.003** |
| Bachelor degree | -0.563 | 0.349 | 0.107 | -1.247 | 0.121 |
| Master degree | 0.125 | 0.355 | 0.724 | -0.571 | 0.822 |
| Personal interest | 0.410 | 0.295 | 0.165 | -0.168 | 0.988 |
| Friends | -0.464 | 0.414 | 0.262 | -1.274 | 0.347 |
| Family experience | 0.227 | 0.322 | 0.482 | -0.405 | 0.858 |
| School experience | -0.097 | 0.305 | 0.749 | -0.694 | 0.500 |
| **Farming experience** | **0.650** | **0.244** | **0.008** | **0.171** | **1.128** |
| Wald $Chi^2$ | 164.54 | | 0.001 | | |

**Source:** Author (2023)

# 6. Discussion

## 6.1. The interest of students in pursuing farming as a career

**Are students from the Faculty of Tropical AgriSciences interested in pursuing farming?**
**Are international students more interested in farming compared to Czech students?**

The results of this thesis imply that a majority of the students 46 % present a low-level interest in pursuing a career as a farmer. However, 36 % of the respondents reported a high level of interest in farming and 12 % of the students showed no interest in farming. The results of the Mann-Whitney U test demonstrated that international students are more interested in pursuing farming in comparison to Czech students.

Research from Thailand found that the majority of agricultural students expressed a high interest in becoming a farmer in the future, and only 6 % reported not being interested in farming (Filloux et al. 2019). A case study from India revealed that around 65 % of agricultural graduates preferred service sector employment, followed by higher education/work abroad 14 % and farming 8 % (Nag et al. 2018). In contrast, according to Filloux et al. (2019), students are motivated to have a "modern" farm and plan to gain the resources to start their farm later on. However, research by Mwaura (2017), described the plans of young graduates in Kenya, Africa, who began farming to be able to gain resources so that they could shift away from farming later. This suggests that the factors influencing students' intentions to become farmers may vary across different cultural and socio-economic contexts.

In addition, another case study from Thailand demonstrated that 38 % of interviewees who had a bachelor's degree planned to become farmers in the future (Faysse et al. 2019). Furthermore, in India, farming was found to be the most preferred among bachelor's degree graduates 13 %, as compared to those with other degree levels (Nag et al. 2018). These findings support our thesis by demonstrating the interest in farming among students, however, specifically in our thesis, bachelor students 23 % expressed the least amount of interest in farming in comparison to master's 46 % and Ph.D. students 52 %.

In contrast, in the USA, 78.5 % of young farmers do hold an associate degree or higher. This previous fact contradicts the idea that young people aspire to modern jobs or don't like hard work. Moreover, this argument is reinforced by Kovach et al. (2022), where the author stated that the number of students in agricultural higher education is growing, nevertheless, the question remains if the Hungarian, EU, students intend to become farmers or successors someday.

Furthermore, research from Nigeria, Africa, revealed that 27 % of the students were willing to pursue a career in agribusiness. However, students' impressions of their learning environment, learning atmosphere, teaching quality, and convenience of the course of study all significantly affect their decision to pursue a career in agriculture. Therefore, the question remains if there would be well-qualified skilled farmers and food processors that can sustain the food supply chains to meet the growing demand. The author explains that this is not only a situation in Africa, but also in Asia and other developing countries (Ikuemonisan et al. 2022).

It is essential to consider that the distribution of opportunities among youth is highly unequal, despite differences between nations, young people's rates of enrolment and graduation, educational quality, and labor force involvement are consistently lower in rural areas, while rates of adolescent pregnancy and poverty are greater (Cazzuffi et al. 2020). This previous statement supports understanding the diverse viewpoints of students, which are influenced by their prior experiences such as in agriculture and education, and how these experiences may shape their envisioned career paths.

## 6.2. Factors influencing students' decisions to become farmers

**What factors influence students’ interest to become farmers in the future?**

The results of the ordered probit model revealed that gender, farming experience, and urban area influence the decision of students to become farmers. Moreover, based on the results of the Mann-Whitney U test, there is a relationship between farming family background and students' interest in farming.

### *Gender*

The statistical analysis of the ordered probit model revealed that women are less likely to express an interest in farming. Contrary to research from Thailand that revealed that there was no quantitative difference in young people's farming plans based on gender (Filloux et al. 2019), this thesis revealed a considerable difference between males' and females' aspirations in farming. Nonetheless, Faysse et al. (2019) stated that males frequently become farmers earlier than women and several women began farming after becoming married to farmers or as a method to boost their income. Research conducted in the Altai State, Russia revealed that 13 % of female respondents desired to work in agriculture after earning their undergraduate degrees, but few of them intended to do so in their parental town. Moreover, the majority of these women expressed plans to work in the local industry as administrators despite their agricultural background. These findings lead to the intuitive conclusion that the new generation of educated women rejects maintaining the old social role of rural women and that their willingness to work in agriculture is diminishing (Bednarikova et al. 2016). These findings are in agreement with the established view from this thesis which revealed that females are less likely to express an interest in farming.

### *Rural-urban*

The results of this research indicate that most of the students who participated in the study grew up in urban environments, accounting for 61 % of the total respondents. Moreover, the results from the ordered probit model demonstrated that people from urban areas are less interested in farming.

A study conducted in Turkey highlights how due to rural-urban migration, Turkey's agricultural population is declining annually, and as in other developed nations, this has an impact on the number of young farmers in Turkey. The author suggests that rural regions must be made desirable for the younger generation. Moreover, if socioeconomic factors improve, youth won't want to move to the city if income and living conditions are better in rural areas, and agriculture will appeal to them, which will also play a crucial role in rural development (Can & Engindeniz 2020).

In addition, a study conducted in Ghana expressed a growing consensus that agriculture holds the key to tackling the challenge of youth unemployment in Africa. The author stated that young people's attitudes toward farming are partially explained by the absence of services and facilities in rural areas. The city's flashing lights and the notion that there are several jobs available outside farming are two potential pull factors that play an influential role in youth migration (Sumberg et al. 2017). This thesis further demonstrates that this lack of interest extends globally, although it's important to acknowledge the cultural and contextual differences across countries.

Building upon the previous argument and the findings of this thesis, it's worth reflecting on the fact that 39 % of Czech students have grown up in rural areas. This raises an important question: Will these students choose to embrace their rural roots and potentially pursue a career in agriculture? According to Czechia's CAP strategic plan, it has been recognized that depopulation and a lack of work prospects are major problems in rural areas. However, many strategies are being implemented to improve the standard of living for rural residents through a variety of support measures. This assistance will help more than 1700 young farmers, which will encourage young people to get involved in agriculture and lessen the depopulation of rural areas in the Czech Republic (European Commission 2022).

***Family background***

The findings of this thesis reveal that the majority of the students 53 % came from families that do not own a farm. Nonetheless, 46 % of the respondents reported having a family farm, with fathers 19 % and uncles 17 % being the most common owners. The results of the Mann-Whitney U test expressed the relationship between farming family background and students' interest to become a farmer. The findings reveal that students with a farming family background have a higher interest in becoming a farmer in the future.

According to Filloux et al. (2019), in Thailand, family factors are very influential in shaping students' farming aspirations. The author highlights how the income generated by family farming plays a crucial role in determining students' decisions to pursue a career in agriculture.

This previous argument is corroborated by Faysse et al. (2019), who stated that the amount of money students' parents made from farming influenced their decision to pursue farming and their goals for the future. Furthermore, the profitability of the farm influenced parents and their advice to their children regarding a career in farming. This factor held greater influence over young people's perspectives and future plans compared to gender or level of education in this particular case study from Thailand. Moreover, all of the students that expressed intentions of becoming farmers within the next decade had parents who were already engaged in farming (Faysse et al. 2019). In addition, according to Bednarikova et al. (2016), in Russia, all male respondents who wished to return to their hometowns after completing their university education and whose families owned land expressed a desire to work in agriculture. This suggests that these individuals are likely to continue managing their family properties. In Hungary, Kovach et al. (2022), demonstrates through statistics the high correlation between students' interest in farming and their parents having an agricultural background. These findings support our research by expressing a high correlation between family farming background and students' interest in farming.

In the USA, 78 % of young farmers are first-generation, meaning they have not inherited knowledge, farming business, or land due to farming family background. This contradicts our findings, by demonstrating how farming family background may not be an influential factor for the next generation of farmers (NYFC 2022).

### *Production systems*

#### Are students interested in sustainable farming practices?

The findings of this thesis demonstrate that students exhibit a strong interest in sustainable farming practices. Organic agriculture was the most popular choice with 55 % of respondents expressing interest.

In support of our findings, according to Filloux et al. (2019), the majority of the students showed interest in integrated farming, which is a joint production of crops and animals that is considered a sustainable agricultural technique. In addition, 12 % aimed to develop organic farming. In contrast, according to Faysse et al. (2019), only one respondent was interested in organic farming. In fact, the author stated that the key reason for their disinterest is the lack of examples in the surrounding village to inspire them. In addition, according to Kovach et al. (2022), organic farming was not attractive to students, who were probably going to inherit a conventional farm.

In support of this thesis, Can & Engindeniz (2020), stated that students highlighted the major importance of developing "plant and animal production with organic agriculture practices". The author believes that this high interest among students is due to the fact that there is a greater awareness in society about healthy nutrition which has led to an increase in investment in organic agriculture. In fact, in the USA, 97 % of young farmers are using sustainable agricultural practices, and 21 % have a USDA organic certification (NYFC 2022).

## 6.3. Factors that limit students' motivation to choose farming as a career path

**What factors are perceived as limitations for students to become farmers?**

In this thesis, access to land was the primary factor limiting the motivation of the majority of students towards becoming farmers 33 %. In addition, unprofitability was the second most commonly cited factor, with 29 % of respondents indicating this as a barrier. Moreover, Pearson's Chi2 test of independence and Fisher exact test demonstrated that Czech students exhibit a greater degree of concern toward the prospect of failure compared to international students.

Research from Thailand demonstrated that students' main barriers to becoming a farmer were the need for considerable starting capital, unprofitability, the risks involved in farming, and access to land and markets. However, lack of capital was the most mentioned barrier in this study (Filloux et al. 2019).

In addition, Faysse et al. (2019), emphasizes that the main factor limiting students to enter farming was the lack of capital 82 %, knowledge of farming practices and marketing 71 %, and access to land 64 %. These facts, state that a lack of capital is one of the main limitations to becoming a farmer. In this thesis, 19 % of students mentioned as a limitation a lack of subsidies and credits which is linked to a lack of capital. However, access to land seems to be a secondary concern for students in Thailand in comparison to the results from this thesis. Furthermore, research in Africa, highlights that there is neither agreement nor disagreement with the barrier of the inability of access to land (Sumberg et al. 2017).

According to Faysse et al. (2019), the main general difficulty was access to resources and not the social status of farmers. This statement supports our thesis findings where only 1.6 % of the students believed in the perception of farming as an antiquated job and this relates to the social status of the farmer. In contrast, students from Africa identified the main barriers limiting their motivation towards becoming a farmer as: "Farmers are not respected", "farmers are poor", and "farmers work hard for little rewards" (Sumberg et al. 2017). The previous factors relate to unprofitability, which is the second leading barrier according to this thesis. However, it also relates to the social status of a farmer and the findings of this thesis did not support that limitation.

According to Grubbstrom et al. (2014), students reveal their awareness of the necessity of farmers taking risks but do not view it as a limitation. They state that risk-taking and facing challenges are a source of some excitement and an important part of why they choose to be farmers. Furthermore, they consider it a resilient process that involves taking decisions and learning from them. In contrast, Filloux et al. (2019), stated that the risks involved in farming are considered a limitation for students to become a farmer. Moreover, the findings from this thesis demonstrated that risk factors such as climate change, natural disasters, pests, and diseases were cited by 23 % of the respondents. Consequently, in the USA, 73.3 % of young farmers have experienced at least one climate impact on their farms in the past year (NYFC 2022).

Furthermore, the limitation of the lack of holidays and free time was a negative aspect agreed on by all students (Grubbstrom et al. 2014). This statement corroborates the findings of this thesis where the flexibility of working hours and contracts was selected by 27 % of the students.

In contrast to the findings of this thesis, where 20 % of students selected as a barrier that farming is a physically demanding occupation. Swedish students believe that future farmers will not need to be physically strong due to mechanization (Grubbstrom et al. 2014).

In the USA, established young farmers selected as extremely challenging to buy affordable land 59 %, and finding access to capital to grow their businesses was very or extremely challenging 41 % (NYFC 2022). Moreover, in the EU, the availability of land to buy is the main necessity of young farmers (European Commission 2015). These findings reinforce our research by corroborating that students' perceptions of limitations towards becoming a farmer are in line with the current challenges young farmers are facing.

## 6.4. Factors motivating students to become farmers

**What factors are perceived as the most influential in encouraging students to become farmers?**

Based on the results of this thesis, the top-ranked factor motivating students to become farmers are lifestyle benefits of a farming operation, with 57 % of respondents selecting this option. In addition, the second highest-ranked factor is an increase in community involvement, selected by 34 % of respondents. Moreover, Pearson's Chi2 test of independence demonstrated that Czech students seem to be less motivated by economic success compared to international students whereas international students seem to be less motivated by lifestyle benefits from the farming operation.

According to Faysse et al. (2019), students believed that working in agriculture offered better living and working conditions. They believed that farming allowed them to be independent, have leisure time, and spend time at home with their families. A case study from India concluded that the main factors contributing to students' choice of a career in agriculture were: a preference for living close to natural environments, an opportunity to achieve a dream career in the rural community, and participation in volunteer activities within the community (Nag et al. 2018). In addition, Bednarikova et al. (2016), stated that most students are attracted to a rural way of life, and this demonstrates the willingness of respondents to live in rural areas and take over farming someday.

Research from Sweden portrays students' opinions on farming such as “It is important to be deeply committed because being a farmer is a lifestyle. You have to be motivated enough to be flexible and work day and night without getting paid for it, and to be prepared to put in the extra hours”. However, the situation is questionable for some of the students, they talk about the potential financial and interpersonal challenges the process may bring because they are unsure of what will happen if they take over the family farm (Grubbstrom et al. 2014). These findings are consistent with our thesis research, the factors described are congruent with the lifestyle benefits of farming.

Sumberg et al. (2017), stated that students did not agree nor disagree with the fact that farming can be beneficial by being your boss and always having food to eat. The author suggests that if farming provided a better livelihood and more social status, young people’s attitude toward it might be more positive.

According to Grubbstrom et al. (2014), students acknowledge the fact that working with neighbors will be crucial for their futures in agriculture. One girl stated: “You can't accomplish anything if you don't collaborate with others around you”. Moreover, in the USA, established young farmers stated that their main motivation for farming is based on producing food for the local community, protecting the land, teaching young farmers, and building community (NYFC 2022). These statements match the findings from this thesis, demonstrating the value of an increase in community involvement in farming for students.

# 7. Conclusions

The thesis has contributed to new insights regarding factors that influence university students` interest in pursuing farming as a career. The literature review has focussed on two important issues, the young farmer dilemma, and the main challenges young farmers are facing from a global perspective. The findings of this research revealed that a student's cultural influences, family background, urban or rural origin, gender, and previous farming experience, all interact as push and pull factors that play a critical role in shaping attitudes toward considering farming as a career choice.

The results of this research showed that a substantial percentage of students of FTA have an interest in being farmers in their future careers. However, a small percentage expressed no interest in pursuing farming and the highest results percentile came from students who expressed a low level of interest in farming as a career goal. Based on the results, international students seemed to be more likely interested in farming compared to Czech students. Regarding the factors influencing students' intentions to be farmers in the future, the results indicated that four factors shaped students' interest. Firstly, results showed that females were less likely to express an interest in farming. Secondly, students from urban areas had a lower likelihood to be farmers in the future compared to students from rural areas. Thirdly, students with previous experience on a farm were more likely to consider farming as a career choice. Fourthly, students who came from farming families were more likely to be interested in farming. When students were asked about their interest in sustainable farming practices, the results exhibited a strong interest, and organic agriculture was the most highly rated result for this question. The findings also revealed that the main factor limiting the student's ability to become a farmer was land access. The Czech students were more likely afraid of failure in comparison to international students. Lastly, the most influential reason for wanting to become a farmer was the lifestyle benefits of a farming operation. However, international students were less motivated by the lifestyle benefits of a farming operation than Czech students. The Czech students were also less motivated by economic success than the international students. The research for this study was conducted as an academic contribution to existing scientific knowledge on factors that stimulate agricultural careers that may result in farming professions.

However, this study was unique in that it examined student perspectives by differentiating motivating factors and barriers between international students and Czech students. Nevertheless, the significance of this research is its potential impact on the field of agriculture studies, by contributing to a better understanding of why students pursue or do not pursue farming careers. These identifying factors may be used for educational strategies in order to promote farming as a more rewarding and sustainable profession. These research findings can be used as resourceful information for the development of agricultural education programs and projects that are focused on the needs and interests of young people in the agricultural sector. Lastly, this research aimed to contribute to a more sustainable and equitable future for the field of agriculture and farming professions.

# 8. Recommendations

Based on multi-faceted factors from this thesis, there are a few recommendations that will be addressed from a global perspective to encourage the engagement of youth in agricultural roles. First of all, gender should not be a limiting factor in farming careers. Extensive effort should be put into action to promote gender equality and to develop an inclusive climate to encourage and support both men and women in terms of access to education, resources, and funding opportunities. In addition, a concerted effort should be made to bridge the urban-rural divide by encouraging more students from urban areas to explore farming as a viable career option. This could be achieved by the creative development of outreach programs and partnerships between local governments, universities, and farming communities. Practical interventions in agriculture, which expose youths to a variety of aspirational career opportunities in farming should be available to students through internships and apprenticeships. This early exposure at a younger age will give students hands-on experience to develop practical skills that are an introduction to the foundation of farming which could spark an interest in many youths. Students who come from families with farming backgrounds should be encouraged to continue the family tradition and be given the imperative support to help succeed. The education of all youth should be more innovative and expose students to the prominent field of sustainable agriculture processes such as agroforestry, regenerative agriculture, and organic farming. The main factors that limit students' motivation to become farmers should be addressed through better programs and financial incentives. Governments should also support more educational pathways to learning about farming in local organizations and outreach programs in addition to traditional learning institutions. Lastly, to encourage university students to become farmers in the future a comprehensive approach that addresses the various factors that limit their motivation and opportunities must be adopted. This will require a global collaboration of knowledge and effort between universities, governments, and farming communities to provide the necessary support and resources to make farming an innovative and viable career option.

# 9. Limitations

***Sampling method limitations***

The study focused on students at the Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague, and utilized a non-random and voluntary sampling method for the final survey due to the unavailability of a comprehensive list of students, as prohibited by EU laws. As a result, random sampling could not be employed to gather data, and the sample selected may not represent the entire population accurately.

***Self-reported information bias***

A drawback of the research is the possibility of partial findings because of the use of self-reported information, which could be influenced by social desirability bias. Additionally, the survey was created using resources that focused on the obstacles encountered by young farmers in Europe, the necessity for generational renewal in agriculture, and the potential and attractiveness of the farming industry. Thus, there is a chance that the survey may have missed some crucial factors that could potentially affect the aspirations of students to become farmers.

***Limitations of the likert scale***

In addition, this research used a Likert scale to measure the expectations of students becoming farmers. However, the method chosen may have been a limitation for a detailed comprehension of the participants' attitudes toward farming.

***Limitations of comparing national and international students' interest in farming***

Lastly, a limitation of this study was the lack of previous research comparing national and international students' interest in farming. As a result, the study's findings cannot be directly compared to previous research, which limits the ability to draw generalizable conclusions about the differences in intentions to become farmers between these two groups.

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# Appendices

**List of the Appendices:**

# Appendix 1: Questionnaire

Dear respondent,

I would like to thank you in advance for participating in this questionnaire.

This survey aims to address the current situation regarding the probability of students from the Faculty of Tropical Agrisciences becoming farmers.

The survey will take approximately 5 to 10 minutes to complete. The questionnaire is voluntary and completely anonymous.

Thank you for your time and cooperation.

Contact:
Name: Sofia Bursic
Email: Sofiabursic@gmail.com
B.Sc. student of International Cooperation in Agricultural and Rural Development, Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague.

*Required

## Personal Information

1. What is your gender? *

*Mark only one oval.*

- ◯ Male
- ◯ Female
- ◯ Non-binary
- ◯ Other: _____

2. What is your age? *

_____

3. What is your maritial status? *

*Mark only one oval.*

- ◯ Single
- ◯ Married
- ◯ Separated
- ◯ Divorced
- ◯ Other: _____

4. What is your country of origin? *

_____

5. In which type of area did you grow up in? *

*Mark only one oval.*

- ◯ Rural
- ◯ Urban
- ◯ Other: _____

6. What degree are you currently completing at the Faculty of Tropical Agrisciences? *

*Tick all that apply.*

- ☐ Bachelor degree
- ☐ Master degree
- ☐ PhD

7. Which specific study program are you completing? *

*Mark only one oval.*

- ◯ BC degree: International Cooperation in Agricultural and Rural Development
- ◯ BC degree: Tropické zemědělství
- ◯ MSC degree: International Development and Agricultural Economics
- ◯ MSC degree: Agri-food Systems and Rural Development
- ◯ MSC degree: Tropical Crop Management and Ecology
- ◯ MSC degree: Tropical Forestry and Agroforestry
- ◯ MSC degree: Wildlife and Livestock Production, Management and Conservation
- ◯ MSC degree: Tropical Farming Systems
- ◯ MSC degree: Agricultural Sciences and Farming Systems in the Tropics and Subtropics - double degree
- ◯ PhD: Tropical Agrobiology and Bioresource Management
- ◯ PhD: Sustainable Rural Development
- ◯ PhD: Agriculture in Tropics and Subtropics
- ◯ Other: _____

8. Which personal life experiences have led you to choose a study program related to agriculture and rural development? *

*Tick all that apply.*

- ☐ Personal interest
- ☐ Friends
- ☐ Family experience
- ☐ School experience
- ☐ After school experience (volunteering, travelling, gap year)
- ☐ Other: _____

Farming Experiences

9. Have you ever worked on a farm? *

(The farmer must sell a percentage of their products to the market; this means that self-subsistence farms are excluded from the survey)

*Mark only one oval.*

- ◯ Yes
- ◯ No
- ◯ Other: _____

10. If you answered yes, please describe your farming experience and if it was a paid or voluntary position. *

_____

_____

_____

_____

_____

11. Do any of your family members own a farm? Please specify the size. *

(The farmer must sell a percentage of their products to the market; this means that self-subsistence farms are excluded from the survey)

*Mark only one oval.*

- ◯ 0 - 5 hectare
- ◯ 5 - 10 hectare
- ◯ 10 - 20 hectare
- ◯ 20 or more hectare
- ◯ They do not own a farm
- ◯ Other: _____

12. If you answered yes, which of your family members are involved in farming? *

*Tick all that apply.*

- [ ] Boyfriend/ Girlfriend
- [ ] Spouse
- [ ] Father
- [ ] Mother
- [ ] Brother
- [ ] Sister
- [ ] Grandfather
- [ ] Grandmother
- [ ] Uncle
- [ ] Aunt
- [ ] Cousins
- [ ] Father-in-law
- [ ] Mother-in-law
- [ ] None of my family members are involved in farming
- [ ] Other: _____

Life Expectations

13. Do you feel that life satisfaction is related to job experiences? *

*Mark only one oval.*

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Do not agree
- ◯ Disagree
- ◯ Other: _____

14. When you think about your future life expectations in your job, what do you view as the most important: *

*Tick all that apply.*

- [ ] Career opportunities
- [ ] Wages
- [ ] High level of work (job status)
- [ ] Impact of work position (meaningful position)
- [ ] Team effort environment
- [ ] Vacation/free time
- [ ] Other: _____

15. Would you work for a position in the agriculture sector?

*Mark only one oval.*

- ◯ Definitely consider
- ◯ Might or might not consider
- ◯ Would not consider
- ◯ Other: _____

Pursuing Farming

16. What is your expectation of becoming a farmer? *

*Mark only one oval.*

Not interested at all

1
2
3
4
5
6
7
8
9
10

Highly interested

17. Would you be interested in pursuing farming: *

*Tick all that apply.*

- [ ] Full-time
- [ ] Part-time
- [ ] As a hobby (self consumption and sharing with friends)
- [ ] Community farming
- [ ] Not interested
- [ ] Other: _____

18. What production systems are you interested in? *

*Tick all that apply.*

- [ ] Organic agriculture (a production system that sustains the health of soils, ecosystems, and people, commonly known for its certification system by following specific regulations)
- [ ] Biodynamic (a form of alternative agriculture based on pseudo-scientific and esoteric (astrological indicators) concepts initially developed in 1924 by Rudolf Steiner)
- [ ] Regenerative agriculture (is a conservation and rehabilitation approach to food and farming systems, Its main focus is topsoil regeneration)
- [ ] Agroforestry (Agroforestry is the interaction of agriculture and trees, including the agricultural use of trees)
- [ ] Permaculture (is a system of assembling conceptual, material, and strategic components in a pattern which functions to benefit life in all its forms, focused on ecological and science-based approach to replicate the patterns seen in nature)
- [ ] My own sustainable farming approach
- [ ] Conventional agriculture (Conventional farming uses synthetic chemicals and fertilizers to maximize the yield of a particular crop or set of crops, which are typically genetically modified)
- [ ] Not interested
- [ ] Other: _____

19. What size of farm would you be interested in? *

*Mark only one oval.*

- ◯ 0 - 5 hectare
- ◯ 5 - 10 hectare
- ◯ 10 - 20 hectare
- ◯ 20 or more hectare
- ◯ Not interested
- ◯ Other: _____

20. Would you be willing to develop certain skills to run a farm? *

*Tick all that apply.*

- ☐ Yes, I need more knowledge to run a farm (regarding the product and means of production)
- ☐ Yes, I am interested in developing management skills (arrangement and organization of the production process)
- ☐ Yes, I am interested in entrepreneurship and innovation skills (strategic choices)
- ☐ No, I already have all the skills necessary to be a farmer
- ☐ No, I am not interested in becoming a farmer
- ☐ Other: _____

21. Which factors limit **your motivation** towards becoming a farmer? *

*Tick all that apply.*

- [ ] Increased competition of the markets
- [ ] The need for integration within the agricultural chain
- [ ] The diminishing attractiveness of the sector as a farmer
- [ ] The flexibility of working hours and contracts
- [ ] Food security and globalization
- [ ] Price volatility
- [ ] Pressures on production costs due to high input prices and the deteriorating position of farmers in the food supply chain
- [ ] Resource efficiency
- [ ] Soil and water quality
- [ ] Threats to habitats and biodiversity
- [ ] Access to land (buy or rent)
- [ ] Lack of subsidies and credits
- [ ] Lack of qualified labour
- [ ] Access to machinery
- [ ] Access to new and useful knowledge
- [ ] unprofitable
- [ ] Access to useful trainings/ workshops/ networks
- [ ] Antiquated job
- [ ] Physicall demanding occupation
- [ ] Risk factors (climate change, natural disasters, pests, diseases)
- [ ] Fear of failure
- [ ] Its not of my interest to be a farmer
- [ ] Other: _____

22. Which factors **increase your motivation** towards becoming a farmer? *

*Tick all that apply.*

- [ ] Economic success
- [ ] Increase of community involvement
- [ ] Lifestyle benefits from farming operation
- [ ] My family has a farm and I will take over
- [ ] Its not of my interest to be a farmer
- [ ] Other: _____

23. If you are interested in pursuing farming, **when will you begin to explore this path?** *

*Mark only one oval.*

Present

1 ◯

2 ◯

3 ◯

4 ◯

5 ◯

6 ◯

7 ◯

8 ◯

9 ◯

10 ◯

Future (10 years)

24. Gage your preference of becoming a farmer or being in paid employment

*Mark only one oval.*

Farmer

1 ◯

2 ◯

3 ◯

4 ◯

5 ◯

6 ◯

7 ◯

8 ◯

9 ◯

10 ◯

Paid employment

25. Are you aware that there is a current need for young farmers, in order to support local and regional supply chains needed for emergencies, for general domestic food production and to meet the growing demand of local food? *

*Mark only one oval.*

- ◯ Yes
- ◯ No
- ◯ Other: _____

26. I would appreciate any opinion, advice, or criticism. Thank you for your time and cooperation!

_____

_____

_____

_____

_____