

THE ROLE OF EDUCATION AND BUSINESS SKILLS IN IMPROVING AGRICULTURAL PRODUCTION

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Abstract

In today's business environment, education and business skills play a crucial role as they assist in various areas of business, including proper planning of business processes, risk and threat analysis, appropriate service and product planning, enhancement of strategic and analytical thinking, management of production processes, and planning and utilization of innovations. Education and well-developed business skills enable farmers to adopt innovations, refine techniques, and apply new technologies that can significantly improve production efficiency. In addition to knowledge, business skills such as resource management, strategic planning, marketing, and time management allow farmers to optimize their business processes, increase competitiveness, and respond to market changes. The aim of this paper is to explore how education and the development of business skills impact the advancement of agricultural production, as well as to provide recommendations for improving educational programs and support in this field.

Key words: Education, Business skills, Agriculture, Knowledge.

Introduction

Today, education holds strategic importance in developing knowledge-based societies. The goal of modern education and business skills development is to strengthen professional knowledge and acquire key competencies so that individuals are prepared for new professional challenges and integration into contemporary societal trends (Vujčić et al., 2022). In the modern agricultural sector, the ability to respond to dynamic changes in the environment and market has become crucial for the sustainability and competitiveness of agricultural producers. One of the most important aspects of this response is the integration of education and the development of business skills. While traditional agricultural practices and techniques remain important, modern approaches in agriculture require farmers to possess not only technical knowledge but also management and business skills. Many authors believe that human skills are becoming increasingly significant for improving organizational competitiveness and productivity, introducing innovations, and employing the workforce (Vujčić et al., 2022).

Numerous authors point out that education and training are key components of human capital, which refers to the knowledge, skills, and abilities of individuals that can be used to create economic value. From an individual perspective, education and business skills are essential for career development, while from a national perspective, education and business skills can lead to higher levels of productivity, innovation, and economic growth. Some of the key factors that help apply education and business skills in improving any production or service provision include:

- **Quality of Education:** Providing high-quality knowledge and skills necessary for success helps to develop critical thinking and problem-solving skills within the business itself.
- **Access to Education:** Another key factor that aids in improving production or service provision. Farmers with access to education are more likely to acquire the skills and knowledge needed to succeed in developing their business compared to those without such access.
- **Technical and Vocational Education and Training:** These provide the skills needed to work in specific industries or professions. Such programs can help bridge the gap between education and the labor market by equipping individuals with the skills and knowledge required to succeed in their chosen field.
- **Lifelong Learning:** Lifelong learning is essential for keeping up with changes in the labor market. As new technologies and industries emerge, individuals must continually update their skills and knowledge to remain competitive. Lifelong learning programs can assist individuals in acquiring new skills and knowledge throughout their careers.

Education and training are critical components of human capital necessary for driving economic growth. Countries that invest in education and training generally experience higher levels of productivity, innovation, and economic growth. By focusing on the quality and accessibility of education, technical and vocational training, and lifelong learning, countries can build a skilled workforce capable of driving economic growth and prosperity. Radović Marković (2011) notes that "even where job opportunities exist, many cannot find employment because they lack the adequate education or skills that are in demand," and that education "must serve the purpose of new employment and reduce the gap between the labor supply and the needs of the economy."

Education in agriculture, including courses on modern technological solutions, biotechnology, and sustainable development, enables producers to apply innovations that can significantly enhance productivity and efficiency. For example, the use of advanced agronomic techniques and water resource management can lead to higher yields and reduced costs. Additionally, education in finance, resource management, and strategic planning allows farmers to better manage their resources, plan long-term goals, and identify new market opportunities.

Skills such as financial management, product marketing, and supply chain management can greatly impact the economic sustainability and competitiveness of agricultural producers. Without adequate business knowledge, farmers may struggle to adapt to market conditions and challenges such as price fluctuations, climate change, and regulatory requirements.

Literature review

According to the final data from the 2023 Agricultural Census, the number of agricultural holdings in the Republic of Serbia is 508,325. Of the total number of agricultural holdings, 2,002 are holdings managed by legal entities and entrepreneurs, while the remaining holdings (99.6%) are family farms (SORS, 2024).

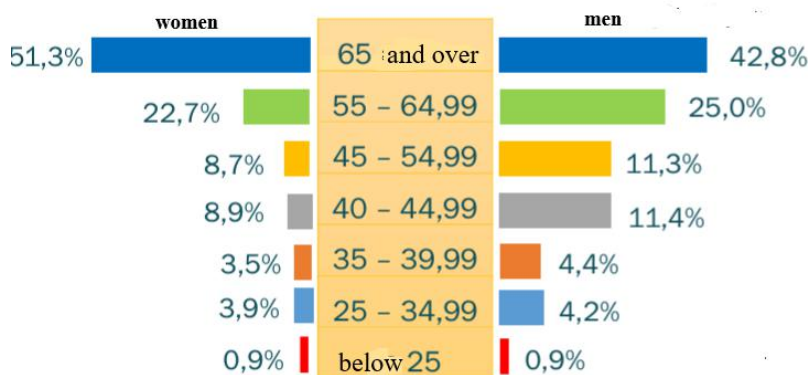


Figure 1. Agricultural Holdings Operators

Source: SORS, 2023

The census revealed that the majority of agricultural holdings (69%) have one to two individuals involved in agricultural production. The agricultural sector in the Republic of Serbia holds significant economic and social importance, as it plays a major role in generating gross domestic product and employing a large number of people (Milanović et al., 2020). In our country, agriculture is positioned as a critical potential for overall societal and economic development, considering the quality and quantity of available resources, rich tradition, and favorable geographic location (Marković, 2010). Daily changes in market conditions have imposed the necessity of a serious approach to planning and organizing all segments of business in agriculture and agribusiness, making decision-making crucial for every manager or business organizer (Nedeljković et al., 2019).

Lapčević and Nikitović (2019) argue that the development of agriculture is significantly influenced by two components: technology and people, whether they are from the agricultural production side or from the consumer side, i.e., the end-users of agricultural products. They note that these two components are of particular importance for increasing agricultural productivity and are realized through the introduction of improved management systems in agriculture.

Numerous studies have shown that education in agriculture significantly impacts the adoption of innovations and the refinement of production techniques. Agricultural education can be defined as a form of education, whether formal or informal, aimed at enhancing agricultural production through improved methods and techniques.

The Agricultural and Rural Development Strategy of the Republic of Serbia for the period 2014-2024 ("Official Gazette RS", No. 85) identifies one of its operational goals as expanding the range of educational and training programs at all levels and types of education, as well as strengthening the capacity for knowledge absorption by

developing awareness and motivation for education. The strategy also plans to support the preparation and use of modern tools for advisory work in agriculture, the improvement of advisory modules, and innovative approaches in agricultural education and training.

Many authors highlight that training in agriculture, such as resource management and the use of advanced technologies, can significantly improve productivity and sustainability. Agricultural education and training contribute to reducing poverty among rural populations worldwide (Wallace, 2007). Asadullah and Rahman (2009) believe that farmers with good education possess enhanced decision-making skills and therefore manage resources for various sizes of agricultural holdings more effectively.

Better-educated farmers more easily and quickly adopt new technologies because they gain clear access to relevant information and can distinguish between promising and unpromising innovations. In addition to education, the development of business skills is also important. Farmers who have undergone training in business strategies and marketing management can better adapt to market changes and optimize their business processes. Investments in education and training for farmers are essential for increasing agricultural productivity. Familiarizing farmers with modern techniques and business skills can foster innovation and improve the overall efficiency of agricultural holdings.

Today, formal education broadens farmers' perspectives, while informal education provides better agricultural techniques, opens minds to new ideas, and fosters innovation. Together, formal and informal education create a well-rounded approach to agricultural education and training, producing professionals who possess both theoretical knowledge and practical expertise, thereby contributing to more resilient and productive agricultural systems.

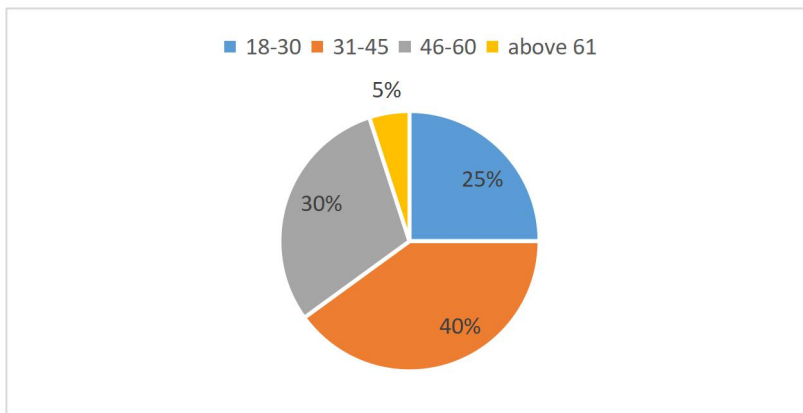
Education and professional training programs play a crucial role in transforming traditional agricultural practices. They enable farmers to adopt new technologies, improve crop management, and integrate sustainable practices into their operations. Developing business skills among farmers, such as financial management, marketing strategies, and resource optimization, is key to enhancing their market competitiveness and economic sustainability. Strengthening capacity and training for farmers, combined with business knowledge, provides them with the tools needed to overcome market challenges and increase their productivity and profitability.

Investigating the Impact of Education and Business Skills on Enhancing Agricultural Production

To examine the impact of education and business skills on improving agricultural production, an empirical study was conducted through surveys of a sample of 225 respondents from the Republic of Serbia. The research was carried out from March to May 2024. Questionnaires were distributed to respondents in both written and electronic forms. A Likert scale (1 - strongly disagree to 5 - strongly agree) was used to measure respondents' attitudes.

The study covered various demographic groups to provide a comprehensive view of the significance of education and business skills in the agricultural sector.

Of the 225 respondents, 60% were male and 40% were female. Regarding age distribution, 25% of respondents were between 18-30 years old, 40% were between 31-45 years old, 30% were between 46-60 years old, and 5% were 60 years or older.



Graph 1. Age of respondents

In terms of educational level, 20% of respondents had elementary education, 35% had secondary education, 30% had higher education, and 15% had advanced education.

Results

The analysis shows that education significantly impacts production enhancement. Respondents with higher levels of education (higher and advanced education) reported greater production compared to those with elementary and secondary education. For example, 70% of respondents with advanced education stated that agricultural training contributed to increased production, while only 40% of those with elementary education reported the same. This suggests that a higher level of education facilitates better adaptation to new technologies and methods, directly contributing to greater efficiency and productivity.

Regarding business skills, 50% of respondents had attended training in this area. The research indicates that farmers who improved their business skills, such as financial management and product marketing, significantly increased their profitability. For instance, 60% of those who participated in business skills training reported that these skills contributed to their market success, while only 35% of those who did not attend such training reported the same. This highlights the importance of business skills for optimizing operations and improving market positioning.

The analysis also shows that farmers who applied the knowledge gained from agricultural and business skills training noticed improvements in product quality. Specifically, 65% of respondents who attended agricultural training reported noticing improvements in their product quality. This is particularly important in agriculture, where product quality can significantly affect market success.

Among the total number of respondents, 55% who participated in agricultural and business skills training indicated that they had become more open to adopting innovations and new techniques in their work. These respondents believe that the

training facilitated a better understanding and application of modern technologies, contributing to their success.

Regarding increased autonomy, 62% of respondents with higher education stated that training in agriculture and business skills enhanced their independence in making business decisions. This indicates that education and training provide farmers with greater autonomy and the ability to manage their businesses independently.

The study revealed that 58% of respondents who participated in business skills training felt more competitive in the market compared to their competitors who did not receive similar training. This perception of competitiveness is often linked to improved business strategies and better recognition of market opportunities.

Furthermore, 57% of respondents who underwent training in agricultural resource management reported improvements in the conservation and more efficient use of resources such as water, land, and fertilizers. This indicates that education on sustainable resource management can significantly contribute to the long-term sustainability and productivity of agricultural practices.

The research showed that 63% of respondents with advanced education believed that training contributed to improved collaboration with other farmers and local communities. These respondents highlighted that the knowledge gained helped them establish networks and partnerships that positively affected their business results.

Training in market analysis and business planning helped a large number of respondents (60%) to improve their analytical skills, enabling them to make better decisions and plan business strategies. This enhanced market analysis capability allows them to better assess risks and opportunities, increasing the success of their business activities.

A significant number of respondents (64%) who underwent training in optimizing production processes reported substantial improvements in process efficiency. These respondents emphasized that the training facilitated better work organization and reduced unnecessary costs, directly impacting the overall productivity in agriculture.

Additionally, a large number of respondents (58%) who were educated in product quality management in agriculture reported reductions in losses and waste in production. These improvements resulted in greater economic savings and better utilization of available resources.

Of the total number of respondents, 59% of farmers who attended training in sustainable agricultural practices reported enhanced awareness of environmental issues and the adoption of more sustainable methods in their agricultural activities. These changes led to reduced negative environmental impacts.

A significant number of respondents (61%) who underwent training in various areas reported increased motivation for continuous learning and improvement. They believe that the training not only improved their current skills but also inspired them to continue their education and explore new methods and technologies.

Conclusion

Agriculture in Serbia is a key component of social and economic development, thanks to its rich resources, tradition, and favorable geographical location. Technology and the human factor are crucial for its development, and training and education play a vital role in enhancing agricultural productivity.

Education for farmers, both formal and informal, enables better resource management, faster adoption of new technologies, and the application of modern business strategies. A combination of theoretical knowledge and practical expertise creates more resilient and productive agricultural systems capable of successfully addressing the challenges of the modern market.

The analysis of research results highlights several key conclusions that underscore the importance of continuous education and training in this sector.

Firstly, education has a significant impact on increasing agricultural production. Farmers with higher levels of education, including higher and advanced education, report that agricultural training has contributed to increased production. This is especially evident when compared to those with elementary and secondary education. For instance, 70% of farmers with advanced education indicate that training improved their production, while the percentage among those with elementary education was considerably lower. These findings suggest that education facilitates better adaptation to new technologies and methods, directly contributing to efficiency and productivity.

Regarding business skills, the research shows that farmers who participated in business skills training, such as financial management and product marketing, significantly increased their profitability. As many as 60% of those who completed training in this area reported that the acquired skills contributed to their market success, whereas only 35% of those who did not receive such training reported the same. This emphasizes the importance of business skills for optimizing operations and better market positioning.

In addition to improving production and profitability, the analysis shows that farmers who implemented knowledge gained from training noticed improvements in product quality. Specifically, 65% of farmers who attended agricultural training reported observing improvements in their product quality. This finding is of great significance for the agricultural sector, where product quality plays a crucial role in market success.

Furthermore, the research revealed that training in agriculture and business skills has broad positive effects on farmers. For example, 55% of respondents became more open to adopting innovations and new techniques, which allows them to better understand and apply modern technologies. Additionally, 62% of farmers with higher education reported that training increased their independence in making business decisions, indicating a higher level of autonomy and ability to manage their businesses independently.

Increased competitiveness is another significant outcome, with 58% of respondents feeling more competitive in the market due to business skills training. This perception of competitiveness is linked to improved business strategies and better recognition of market opportunities. Also, 57% of farmers who underwent resource management

training reported improvements in resource conservation and more efficient use, contributing to long-term sustainability and productivity.

Increased collaboration within the community is another positive result, with 63% of farmers with advanced education indicating that training contributed to improved collaboration with other farmers and local communities. This collaboration often leads to the establishment of networks and partnerships that positively impact business results.

Empowering analytical skills and increasing motivation for continuous learning are also significant outcomes, with 60% of respondents improving their analytical skills and 61% becoming motivated for further education. Enhanced market analysis capability allows for better decision-making and business strategy planning, directly impacting the success of agricultural activities.

The research confirms that education and business skills play a key role in enhancing agricultural production. Continuous education and training enable farmers to improve their production processes, enhance product quality, increase profitability, and strengthen their market competitiveness. Based on these findings, it is recommended to continue implementing training and educational programs in the agricultural sector to further improve results and sustainability in this crucial area.

In conclusion, it is advisable to introduce and enhance modern tools and techniques in educational courses to help farmers adapt more easily to new technologies and methods, thereby improving their productivity and efficiency. Additionally, strengthening the capacity for advisory services, including training for advisors, can improve the quality and accessibility of advisory services for farmers, thus increasing the efficiency and sustainability of their practices. Encouraging collaboration among farmers, educational institutions, and research organizations can facilitate the exchange of knowledge and experiences, as well as the application of innovations in practice.

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