
THE POTENTIAL OF DIGITAL MARKETING IN THE PROMOTION OF ORGANIC AGRICULTURAL PRODUCTS

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ABSTRACT

Organic agricultural production as a holistic approach that aims to promote food production without the use of synthetic chemical fertilizers, pesticides, genetically modified organisms and the system of food production and use takes place in accordance with the principles of preserving biodiversity, soil and ecosystems. However, this system of agricultural production incurs significantly higher costs, and the price of organic agricultural products comes also at a high cost. In addition to the price, one of the most important aspects of acceptance of organic agricultural products by consumers is environmental awareness. The aim of this paper is to analyze the potential for the improvement of digital marketing channels for the promotion of organic agricultural products. The factor analysis applied in this paper has shown that advertising through digital marketing channels has the potential to boost sales, according to producers of organic agricultural products in the Republic of Serbia.

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Introduction

The modern world is facing serious environmental problems, due to the negative (adverse) attitude of people towards the environment. For many years, capital and its increase represented the basis of the economic existence of people on planet earth. (Stojanović, 2017) For years, the production of agricultural products has been characterized by the use of chemical agents, which aim to increase the yield, but not the quality of the product. (Stojanović, 2019) On the contrary, their use not only reduces the quality of agricultural products, but also very often makes them unhealthy for use by consumers.

All environmental problems have led to the fact that almost all countries of the world accept sustainable development as a basic development concept in their macroeconomic development strategies. However, in addition to this, significant environmental problems are present in all fields, including in the field of production and use of agricultural products.

In order for any product, in the modern digital era, to be accepted and used by consumers, especially by the younger generation, it is necessary to talk about it on digital platforms. (Hall, 2020) Digital marketing in combination with traditional marketing channels represents the basis through which consumer awareness can be influenced today. Digital marketing offer significant opportunities, in the sense that products/services can be advertised through search engines, websites, social networks, video sharing platforms, mobile devices, influencers, on other sites, and the like. (Bryła, 2016) All these channels give the possibility to reach consumers and target audience. (Filipović, 2021) When it comes to the subject of this paper, namely the promotion of organic agricultural products, the target audience is everyone. However, in order for a wider audience to accept organic agricultural products, it is necessary to start from a clearly defined target audience, who is ready to change their behavior and is financially capable of switching to organic agricultural products. Only after that, the target audience can be expanded.

In order to successfully promote the acceptance of organic agricultural products among consumers, it is of paramount importance that these products are presented to them in the right way. Consumers need to be made aware of the environmental and health consequences of non-organic production. In other words, it is crucial to gradually raise consumers' ecological awareness. To achieve this, collaboration between the government and organic agricultural product producers is necessary (Czudec et al., 2022; Nedumaran & Manida, 2019). Campaigns aiming to encourage the use of organic agricultural products must be organized both by the government through social marketing campaigns and by the producers themselves. These campaigns should focus on increasing awareness and, ultimately, achieving commercial success through conversion.

The aim of this paper is not only to point out the potential of digital marketing in the promotion of organic agricultural products, but also to identify factors that can improve the application of digital marketing communications in the promotion of these products in the Republic of Serbia.

Literature review

Organic agriculture is a prerequisite for sustainable development, i.e. preserving the quality of the soil, ensuring quality nutrition for the population and, on that basis, raising the quality of the nation's health. The Republic of Serbia has great potential when it comes to nature and unpolluted (unspoiled) natural resources for these branches of agriculture. (Tabaković et al., 2017; Golijan & Sečanski, 2021) Certainly low environmental awareness and high costs of producing agricultural products in this way have a great influence on the fact that it is still accepted to a small extent in the Republic of Serbia. (Stojanović, 2019)

Countries of the European Union, unlike our country, are economically more advanced. Additionally, the EU has emphasized, for a significantly longer period, the importance of sustainable development and sustainable agricultural production. The level of environmental awareness among both agricultural producers and consumers is much higher than in the Republic of Serbia. However, even within the European Union, agricultural product producers often face a lack of demand. One solution to this problem and a way to increase their sales volume is by utilizing digital marketing channels.

The application of modern digital technology has opened doors for producers in all business sectors to enter the global market, facilitating easier communication with consumers, responding to their demands, and thereby fostering brand loyalty. (Kannan & Li, 2017; Marshall & Johanson, 2018; Hall, 2020) Agricultural production is no exception to this trend, as digital marketing channels are used worldwide, including in our country, to promote agricultural products. Novytska et al. (2021), in their study conducted in the European Union, pointed out that digital marketing, specifically its channels for promotion and advertising, can significantly contribute to brand recognition for organic agricultural producers. However, they concluded that digital marketing is still in its developmental stage. Their study also found that larger agricultural enterprises engaged in organic production and with sufficient resources for hiring marketing experts are more likely to utilize digital marketing channels. In contrast, smaller agricultural farms with up to 15 seasonal workers struggle to allocate significant funds for digital marketing. These smaller farms engaged in organic production primarily leverage social media, especially organic advertising on social networks. The reason for choosing organic advertising on social media is that it does not require substantial expenses yet contributes to brand recognition, raising awareness of a specific agricultural producer/farm. Similar conclusions regarding the importance and growing significance of social media for promoting organic agricultural products have been reached by other researchers such as Jurado et al. (2019), Aydogan & Kursat (2018), Albizua et al. (2021), Lippert & Feuerbacher (2023). Additionally, these authors have shown that younger individuals engaged in organic agricultural production exhibit a greater inclination towards digital marketing communication channels, particularly through social media communication. Li (2017) and Semenova (2023) have also indicated that communication through digital marketing channels has a positive impact on the growth of online sales for organic agricultural products.

Bojkić et al. (2016) pointed out in their study that agriculture is a sector where marketing is adopted at a slower pace. Despite this conclusion, they emphasized that digital marketing, in combination with traditional marketing, can significantly contribute to brand awareness and sales growth in the future, particularly in the context of organic agriculture and agriculture in general.

To foster an increase in demand for organic agricultural products, it is essential to develop consumers' ecological awareness. Stojanović et al. (2018) indicated that ecological awareness among consumers in Southern Serbia is not sufficiently developed. Based on the scientific papers (research) they analyzed, they concluded that the situation is similar in other parts of Serbia. Consumers in the Republic of Serbia mainly purchase agricultural products at markets, grocery stores, or shops without necessarily distinguishing between organic and traditional products. (Dašić et al., 2019)

The promotion of organic agricultural products and organic farming largely depends on the government. (Czudec et al., 2022) It is a fact that this form of agricultural production has a significant positive impact on preserving the quality of the environment. However, in developing countries, it is extremely challenging for the government to provide substantial support for the development of organic farming due to the extensive social issues. Consequently, the promotion of organic agricultural production through both traditional and digital media is lacking. (Scialabba, 2000) Such a situation negatively affects the acceptance of organic agricultural products by consumers in these countries. On the other hand, highly developed countries invest significant resources in supporting organic farming and promoting it through marketing channels, increasingly utilizing digital marketing in recent times. This has a substantial influence on raising consumer awareness about the importance of a quality environment and organic agricultural products. (Aceleanu, 2016; Reddy, 2018; Paunglad, 2023) The role of the government in establishing regulations and controlling the production of organic agricultural products is crucial for consumer acceptance. In countries where the government lacks sufficient trust, and its institutions do not function as they should, it is impossible to be certain that the product consumers purchase is genuinely organic. In this sense, it is essential for the government to enact sound regulations, establish control measures, provide financial support to farmers, and support the promotion of organic agricultural products through both digital and traditional marketing channels. (Attri & Bairagi, 2023)

The Covid-19 pandemic contributed to the acceptance of digital marketing at a fast pace by both organic and traditional agricultural producers compared to the pre-pandemic period. This was accentuated by Hardiyanti et al. (2023) in their study. Through their analysis, they highlighted that high-quality content delivered through digital marketing channels can significantly influence the growth of consumer awareness about the importance of organic agricultural production, consequently leading to an increase in demand for these products. They also underscored the importance of digital communication with consumers, establishing long-term relationships, and the use of measurable metrics. The study identified that consumers still prefer to purchase agricultural products (both organic and non-organic) in physical locations, but there is a

gradual increase in online sales of these products. For larger organic agricultural products and perishable items, digital marketing primarily serves to raise brand awareness. In the case of products that do not require special conditions and are easy to deliver, digital marketing channels can be used for both brand awareness and conversion, i.e., sales. Tambiev (2019) demonstrated, based on his analysis, that organic agricultural products have great potential to be sold through online sales channels, with younger farmers expressing such opinions. Social media, as one of the most significant digital marketing channels, has been studied for its potential contribution to the promotion of organic agricultural products by consumers.

Materials and methods

The research sample in this study included 218 participants engaged in the production of organic agricultural products in the territory of the Republic of Serbia. Registered farms were included, and responses were provided by the owners of these farms. This approach allows us to conclude that the survey process was conducted on a representative sample, aligning with the desired participant model in the research. The data collection process was carried out through face-to-face interviews and email communication from May to December 2023.

Before creating the survey questionnaire, publications were analyzed, and the results of empirical research on this topic were considered to define the questionnaire. The questionnaire consists of two groups of questions. The first group pertained to demographic variables: gender, age, level of education, average number of people working on the farm (including family members and seasonal/employed workers), duration of engagement in agricultural production, duration of engagement in organic agricultural production, and region. The second part of the questionnaire covered seven statements that participants rated on a Likert scale from 1 (completely disagree) to 5 (completely agree). The statements were defined based on the analysis of the papers of the authors, who have dealt with this topic, and their adjustment was made in accordance with the research objective and the area where the research is conducted. . The statements that were evaluated by the respondents in the research were as follows:

1. Digital marketing channels can be used to raise environmental awareness among consumers in the Republic of Serbia (Jurado et al., 2019; Aydogan & Kursat; 2018; Albizua et al., 2021; Lippert & Feuerbacher, 2023);
2. The state must promote organic agricultural production through digital channels to support producers of these products (Jurado et al., 2019; Aydogan & Kursat; 2018; Lippert & Feuerbacher, 2023);
3. Digital marketing channels can contribute to the recognition of producers (farms) of organic agricultural products (Jurado et al., 2019; Aydogan & Kursat; 2018), Albizua et al., 2021);

4. Online sales channels can enhance the overall sales of organic agricultural products (Li, 2017; Jurado et al., 2019; Aydogan & Kursat; 2018);
5. The impact of Covid-19 has led consumers of organic agricultural products in the Republic of Serbia to more rapidly embrace digital communication and sales channels (Nikolić & Jelić, 2022; Hardiyanti et al., 2023);
6. Digital communication channels create new markets for organic agricultural products (Li, 2017; Jurado et al., 2019; Aydogan & Kursat; 2018);
7. Social media is a particularly significant communication channel with consumers of organic agricultural products (Jurado et al., 2019; Aydogan & Kursat; 2018; Albizua et al., 2021; Lippert & Feuerbacher, 2023).

The goal was to determine how domestic agricultural producers value digital marketing communication channels with their consumers and whether they believe that digital communication channels can enhance the sales of organic agricultural products.

When conducting the survey, ethical principles were respected. All respondents were guaranteed anonymity and were told that the research results would be used exclusively for scientific purposes.

After collecting data from participants, the information was coded and entered into the SPSS software package for the application of appropriate tests and analysis. In addition to descriptive statistics, independent t-tests and one-way analysis were applied to determine whether there are differences in participants' attitudes towards the importance and potential of digital marketing communication based on their demographic characteristics.

Results

As Table 1 illustrates, out of the total number of participants, which is 218, 178 are male, accounting for 81.65%, while the participation of women (owners of agricultural farms) is 18.35%. When observing the age structure of the participants, those between 41-50 years old are the most represented. Their participation in the total number of participants is 31.19%, while the least represented age group is those under 30 years old, accounting for 8.72%.

Table 1. Demographic characteristics of the respondents

	N	%	AS	SD
Sex				
Male	178	81,65	1.59	.469
Female	40	18,35		
Year				
Up to 30	19	8,72	2.12	1.449
31-40	46	21,1		
41-50	68	31,19		
51-60	54	24,77		
more than 60	31	14,22		
Education				
Elementary school	9	4,13	2.59	1.198
High school	132	60,55		
College	33	15,14		
Faculty/Master/PhD	44	20,18		
Average number of people working on the farm annually				
Up to 10	29	13,30	3.17	1.397
11-20	74	33,94		
21-30	89	40,83		
31 and more	26	11,93		
Length of engagement in agricultural production				
Up to 5	16	7,34	2.01	1.012
6-10	49	22,48		
11-15	77	35,32		
16 -20	52	23,85		
21 and more	24	11,01		
Duration of engagement in organic agricultural production				
Up to 3	29	13,30	1.99	.917
4-8	72	33,03		
9-13	90	41,28		
14-18	24	11,01		
19 and more	3	1,38		
Region				
Vojvodina	134	61,47	2.63	1.074
Belgrade Region	9	4,13		
Central and Western Serbia	39	17,89		
Southern and Eastern Serbia	36	16,51		
Total	218	100		

Source: Autors

Table 1 also shows that the majority of farm owners surveyed have completed secondary education (60.55%), but there is a significant proportion of participants with higher education (20.18%). Participants commonly mentioned in their responses that the average number of engaged workers on the farm ranges from 21 to 30 (40.83%). Regarding the period of time dedicated to agricultural production, respondents most

frequently reported engaging in it for 21 to 30 years, constituting 40.83%. As for organic agricultural production, the largest number of respondents has been involved for 9-13 years (41.28%).

Considering that the Vojvodina region is exceptionally suitable for agricultural production and has the largest areas under organic agricultural production in Serbia (Simin et al., 2019), it was expected that the highest percentage of participants in such research would be from that region. Indeed, 61.47% of the participants are from the Vojvodina region out of the total number of respondents.

Table 2. Descriptive analysis of the rating of statements

Potentials and Impact of Digital Marketing Communication Channels ($\alpha = .949$)	M	SD
Digital marketing channels can be used to raise environmental awareness among consumers in the Republic of Serbia	4.01	1.091
The state must promote organic agricultural production through digital channels to support producers of these products	4.13	1.196
Digital marketing channels can contribute to the recognition of producers (farms) of organic agricultural products	3.91	1.211
Online sales channels can enhance the overall sales of organic agricultural products	3.86	1.155
The impact of Covid-19 has led consumers of organic agricultural products in the Republic of Serbia to more rapidly embrace digital communication and sales channels	4.09	1.097
Digital communication channels create new markets for organic agricultural products	3.9	1.118
Social media is a particularly significant communication channel with consumers of organic agricultural products	4.02	1.143

Source: Authors

Table 2. shows the results of descriptive statistics on how respondents rated the potentials of using digital marketing communication channels with consumers and the possibilities of electronic sales of organic agricultural products in the territory of the Republic of Serbia.

To determine the reliability of the measurement scale, the Cronbach's alpha coefficient was used. Its value in this specific case is .949, indicating high responsiveness and reliability between the observed variables.

Looking at Table 2, it can be observed that Statement 2 has the highest rating: "The state must promote organic agricultural production through digital channels to support producers of these products" (4.13), while Statement 5 has the lowest rating: "Online sales channels can enhance the overall sales of organic agricultural products" (3.86).

The tables presented below (showing the results of ANOVA tests), as already mentioned in the methodology, serve to analyze the impact of demographic characteristics on respondents' ratings for specific statements about the potentials of digital marketing communications in the promotion and sales of organic agricultural products.

Independent samples t-tests were applied to examine whether there is a statistically significant difference in the attitudes of respondents with different demographic characteristics regarding the ratings of specific statements. The results showed that in

the case of gender, the length of engagement in agricultural production, the duration of engagement in organic agricultural production, and the average number of people working on the farm annually, there were no statistically significant differences. However, for other demographic characteristics, differences were observed and will be presented in the following tables.

Table 3. Results of applying one-way analysis of variance based on the age of the respondents

Statement	Average value					F	p
	do 30	31-40	41-50	51-60	više od 60		
Digital marketing channels can contribute to the recognition of producers (farms) of organic agricultural products	4.41	4.09	4.03	3.91	3.12	2.465	.029
Online sales channels can enhance the overall sales of organic agricultural products	4.35	4.13	3.98	3.79	3.05	2.852	.019
Digital communication channels create new markets for organic agricultural products	4.46	4.25	4.07	3.72	3.0	3.011	.014

*results are significant at the 0.05 level

Source: Autors

When it comes to age, a statistically significant difference was identified in three out of seven statements, as seen in Table 3. Based on the table, it can be concluded that farm owners who are younger are more aware of the potential of digital marketing and online sales of organic agricultural products. The results of subsequent measurements using post-hoc tests showed that differences in all three statements from Table 3 are present (between the ratings given by respondents to the statements) between those who are up to 30 years old and those who are 51-60 years old or those who are over 60 years old.

Table 4. Results of one-way analysis of variance based on the level of education of farm owners

Statement	Average value				F	p
	Elementary school	High School	College	Fakultet/ Master/ PhD		
Online sales channels can enhance the overall sales of organic agricultural products	3.18	3.48	4.22	4.55	3.86	.013
Social media is a particularly significant communication channel with consumers of organic agricultural products	3.31	3.59	4.39	4.78	4.02	.027

*results are significant at the 0.05 level

Source: Autors

The results of the conducted analysis, as shown in Table 4, indicate that when it comes to the level of education of farm owners, there is a statistically significant difference in two statements. Ad-hoc tests subsequently conducted revealed differences in the attitudes of respondents who completed primary and secondary school compared to those who completed vocational school, as well as those who completed primary and secondary school compared to those who completed college, master's, or doctoral studies.

Table 5. One-way analysis of variance based on the region to which the owners of the plots where organic agricultural production takes place belong

Statement	Average value				F	p
	Vojvodina	Belgrade Region	Central and Western Serbia	Southern and Eastern Serbia		
Online sales channels can enhance the overall sales of organic agricultural products	4.29	4.05	3.82	3.30	3.86	.014
Digital communication channels create new markets for organic agricultural products	4.35	4.02	3.94	3.30	3.9	.025
Social media is a particularly significant communication channel with consumers of organic agricultural products	4.41	4.33	3.88	3.46	4.02	.017

*results are significant at the 0.05 level

Source: Authors

Table 5. shows the presence of different attitudes among respondents when it comes to regions in three statements. Ad-hoc tests conducted revealed a significant difference in the attitudes of respondents from Vojvodina compared to those who own farms and engage in organic agricultural production in Central and Eastern, as well as Southern and Western Serbia.

Discussion

In the Republic of Serbia, the level of environmental awareness is not yet at a commendable level. Among other factors, this is a crucial reason why consumers are reluctant to accept these products, and thus their demand impacts the volume of organic agricultural production. Based on the conducted research, which focused on the impact of digital marketing communication channels with consumers, it was shown that these channels can influence the development of environmental awareness. However, it was found that this influence can be achieved through synergistic efforts of both the owners of agricultural farms producing organic agricultural products and the state, which should assist in promoting these products among the population. The assessment of the statement by farm owners at 4.13 also indicates the significant importance of state assistance in promotion through digital communication channels. As emphasized

in the study, for sustainable development and for future generations to possess the same quality of resources as the present generations, it is necessary for agriculture to move towards sustainability. It is crucial to reduce the use of chemical substances that negatively affect soil quality and substances used for crops, which can reduce the quality of agricultural products. The importance of state assistance in this field has been demonstrated in the works of Aceleanu (2016), Reddy (2018), Paunglad (2023), and Ahri & Bairagi (2023), Stojanović (2019).

The use of digital marketing channels for product presentation and communication with consumers contributes to brand strengthening (Kannan & Li, 2017). This trend is gradually being embraced, even when it comes to organic agricultural products. Based on the conducted research, it has been determined that the younger population engaged in the production of organic agricultural products strongly believes in the ability to strengthen the brand of their farms and organic products through digital channels. Respondents aged up to 30 years rated this statement with a score of 4.41. Older populations, especially those above 50 years, have somewhat less confidence in the power of digital channels, with even more skepticism from those over 60. However, considering that young producers rated this statement exceptionally high, it can be concluded that digital marketing will have a significantly important role in promoting the brand of organic agricultural producers in the future. The notion that the brand of organic agricultural producers/farms can be strengthened through digital marketing has been proven in the study by Bojkić et al. (2016). Similar views are reflected when considering the significance of online sales channels for organic agricultural products and the creation of new markets for organic products. Younger populations highly value these statements, indicating that digital marketing channels can enhance organic agricultural production by stimulating increased demand and facilitating online sales of agricultural products in the future. This aligns with the findings of studies by Novytska et al. (2021), Jurado et al. (2019), Azdagon & Kursat (2018), Albizua et al. (2021), and Lapperti & Feuerbacher (2023), all of which concluded that younger agricultural producers are more inclined to communicate with consumers through digital channels and promote their organic products.

Furthermore, highly educated individuals who own agricultural farms in the Republic of Serbia believe that online sales can amplify the sales of organic agricultural products. Those who have completed college, master's, and doctoral studies strongly agree that online sales can increase the sales of organic agricultural products, while those with basic or secondary education have less trust in online sales and their contributions when it comes to these products. Highly educated individuals also believe that social networks can be particularly significant in promoting organic agricultural products and attracting consumers, as well as maintaining their loyalty. This aligns with findings in studies by Tabiev (2019) and Semenova (2023), particularly among the more educated population in the Republic of Serbia.

The Vojvodina region, where organic agricultural production is most prevalent, has shown a high inclination toward the significance of digital marketing communications

and online sales of organic products, which is somewhat less present in the territory of Southern and Eastern Serbia

Another aspect highly rated is the impact of the COVID-19 pandemic. Respondents agreed that isolations and the need for distance had an impact on shifting the communication and promotion of organic agricultural products to digital channels. This has been demonstrated in the study by Hardiyanti et al. (2023), as digital marketing channels can significantly improve customer relations, influence their awareness, and help establish loyalty or long-term relationships with consumers.

Statement number 6, rated 3.9 overall, 4.35 for the Vojvodina region, and 4.46 for young agricultural producers, indicates trust that digital marketing channels can open new markets for producers. Digital marketing channels are not constrained by spatial limitations. Communication with consumers can be established with a few clicks, but for all this to have a positive impact, it is necessary to create quality content and direct that content through the right channels to the target consumer group (Hardiyanti et al., 2023).

Nowadays social media enjoys significant popularity with a large number of users. This is also the reason for the presence of a considerable number of brands on these platforms. Agricultural producers have also recognized their importance, as indicated by previous research and the study conducted in this work in the territory of the Republic of Serbia. Surveyed producers highly rated the potential of social media in promoting their products, especially in the Vojvodina region. Social media allows producers to distribute content, advertise their products, influence awareness, and stimulate consumer conversion. The significance of social media has been demonstrated in the works of Jurado et al. (2019), Azdagon & Kursat (2018), Albizua et al. (2021), and Lapperti & Feuerbacher (2023).

Based on the overall analysis, it can be said that digital marketing channels, from the perspective of agricultural producers in the Republic of Serbia, have significant potential. However, in order to harness this potential, training is necessary, as well as the involvement of the state in promoting environmental awareness and organic agricultural production.

Conclusions

The comprehensive study which has been conducted indicates that agricultural producers in the Republic of Serbia believe that digital marketing channels can enhance their business. However, in order to make this possible, it is necessary for the state, through both traditional and digital marketing channels, to collaborate with producers to promote the development of environmental awareness, as it is a prerequisite for accepting organic agricultural products. The results of the analysis suggest that education about the significance of digital marketing channels is necessary among older populations engaged in organic agricultural production. Additionally, education is required among producers living in the territories of Southern and Eastern Serbia, as well as Western and Central Serbia, where the ratings for the importance and possibilities of digital marketing communication channels are slightly lower.

Limitations encountered during this research include the high costs borne by the researchers, which forced them to reduce the sample to 218 producers of organic agricultural products. If a larger sample had been collected, there might have been slightly different results. Also one of the limitations is that the respondents may not have been honest when giving their answers in the survey. In addition to this, the limitation of this paper is that it does not include consumers and their habits, which and how they can influence the channels through which they are reached.

Recommendation for future researchers exploring the role and significance of digital communication channels for promoting organic agricultural products is to identify the target consumer group to whom these producers should address their communication and identify content that can contribute to establishing long-term relationships between producers of these products and consumers.

Conflict of interests

The authors declare no conflict of interest.

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