
MANAGING THE PRODUCTIVITY PROCESS IN AGRICULTURE, A FRAMEWORK FOR IMPROVING THE MARKET POSITION OF AGRICULTURE OF THE REPUBLIC OF SRPSKA

Saša Čekrlija¹, Zoran Đuričić², Radomir Jovanović³, Slobodan Pešević⁴

*Corresponding author E-mail: gong.sasa@gmail.com

ARTICLE INFO

Original Article

Received: 25 July 2023

Accepted: 10 September 2023

doi:10.59267/ekoPolj2303855C

UDC 338.439.5:631.1(497.6)

Keywords:

*agriculture, productivity,
market position, development
framework*

JEL: A11, J43

ABSTRACT

Agriculture in Republika Srpska is the second largest sector with products of low added value. The biggest challenge is strengthening resilience and increasing competitiveness in the market. This paper analyzes the possibilities for improving the position of small farms and establishing a framework for more efficient development of entrepreneurship in the agricultural sector of the Republic of Srpska. The methods used in agro-economic research are used in the work, namely description, induction, deduction, synthesis, compilation, and data comparison and analysis. The increase in productivity is directly dependent on the diversification of production, the application of positive practices and increased resistance to climate change. Improved safety standards of agricultural products and food quality directly affect increased competitiveness and the potential for access to higher value markets. The application of climate-smart irrigation technologies and the improvement of water management in agriculture represents a revolutionary turning point in agriculture.

Introduction

Managing the productivity process in agricultural holdings is essential for achieving successful and sustainable agricultural activities. This paper analyzes the key elements that are important for the efficient management of the productivity process and establishing the framework of a strong market position in the field of agriculture of Republic of

-
- 1 Saša Čekrlija, associate professor, Nezavisni univerzitet Banja Luka, Veljka Mladenovića 12E, Phone: +38766687759, E-mail gong.sasa@gmail.com, ORCID ID (<https://orcid.org/0009-0005-9810-2420>)
 - 2 Zoran Đuričić, assistant professor, Phone: +38765924852, E-mail: zoran.djuricic@nubl.org, ORCID ID (<https://orcid.org/0009-0008-2257-9355>)
 - 3 Radomir Jovanović, Associate Professor, University of Pristina, Faculty of Agriculture, Kopaonička Street nn, 38219 Lesak, Serbia, Phone +381 65 5613940, E-mail: radomir.jovanovic@pr.ac.rs, ORCID ID (<https://orcid.org/0000-0001-7966-2768>)
 - 4 Slobodan Pešević, associate professor, Nezavisni univerzitet Banja Luka, Veljka Mladenovića 12E, Phone: +38766164970, E-mail pesevics@yahoo.com, ORCID ID (<https://orcid.org/0009-0008-1092-4836>)

Srpska (RS). A technologically efficient and sustainable process of managing the overall activities of agricultural farming provides long-term benefits and helps in building a stable agribusiness. It is important that production takes place in a sustainable manner, protecting the environment and resources for future generations. Sustainable agriculture has long-term benefits and helps build stable farming operations. Understanding the market, demand and opportunities for product placement is key to efficient production management. It is very important to successfully find new customers, to achieve better prices that are the result of increasing the safety of food produced on the farm. Stable and sustainable production requires the acquisition of new knowledge and the application of positive practices. The legislative and legal framework is the basis for everything that follows on the way to the successful operation of agribusiness as an entrepreneurial activity. Laws and rules that stimulate development are a sound basis for improving production with the help of financial incentives from the budget money. Public resources also play an important role in the development of the market position and their use is a strong catalyst for the development of this segment of the economy. Climate change significantly affects the fulfillment of the plans of agricultural farms and small entrepreneurs, so it is realistic that the entire concept will change in the future in relation to climate change. Together, these elements form the basis for successful management of the productivity process in agricultural holdings and enable the achievement of greater efficiency, profitability and sustainability of agricultural operations.

Materials and methods

The biggest challenge for quality analysis of this problem is the abundance of available data concerning agribusiness in Republic of Srpska. These data vary significantly depending on which source is used. At the same time, important data are not publicly available, so the analysis cannot be serious and comprehensive. When the resources available to the agricultural sector today are analyzed, a good starting point for further analysis can be obtained. Correlation of available resources, volume of production, financial assistance of the state, quality of produced food and level of selling price give the final conclusion that my measures must be taken in order to improve the market position.

The first step is a deep analysis of resources, product spectrum and basic elements of the market in order to identify potential opportunities and define the framework for competition of own products. This analysis indicates trends in domestic agriculture and the food industry, which is important in drawing conclusions as to whether the production of individual products is profitable and in what percentage.

The identification of competitive advantages is the next step and it is based on the potential for increasing the volume of production, better irrigation, increasing the degree of product safety, ecological cultivation of some agricultural crops, as well as the possibility of participation in complementary economic activities. Production diversification can significantly reduce the risk of market fluctuations and enable new market niches. Finally, product quality plays a key role in gaining a stronger market

position. Finnish and legislative support of the state is a key measure in improving the quality and safety of agricultural products. The analysis of state aid measures and the process of monitoring the implementation of state aid are essentially important for the success of achieving the set goals.

Results

The natural features of Republic of Srpska are very complex, which is a consequence of its belonging to different natural-geographic entities. The differentiation of territorial regions and climatic conditions (ranging from plain to hilly-mountainous regions and from continental to Mediterranean climate) which is characteristic of the Republic of Srpska, corresponds to the development of the agricultural sector. Out of a total of slightly less than 980,000 hectares of agricultural land, of which 815,000 hectares are arable land, according to data for the year 2022, slightly less than 400,000 hectares are cultivated in the Republic of Srpska (*Table 1*). Of the total area of arable land, 50.39% are arable land and gardens, 6.83% are orchards, 0.16% are vineyards, 25.76% are meadows and 16.86% are pastures. Compared to 2010, when the share of arable land and gardens was 48.47%, orchards 7.64%, vineyards 0.12%, meadows 31.75% and pastures 12.02%, we can conclude that in the previous period, there was no significant change in the structure of used agricultural land.

Table 1, Area of used agricultural land 2010-2022

Area of used agricultural land / year.		2010	2015	2020	2021	2022
Total (P)	ha	361,649	354,987	372,352	377,819	398,991
Area of arable garden	ha	175,293	176,308	204,301	201,428	201,057
Orchard area	ha	27,633	28,817	33,221	30,776	27,264
Vineyard area	ha	426	513	673	604	625
The surface of the meadow	ha	114,819	108,329	93,216	94,338	102,787
Area of pasture	ha	43,478	41,020	40,941	50,673	67,258

Source: Institute of statistics of Republic of Srpska

Table 2: Value of import and export of agricultural products

Export and import / year	2010	2015	2020	2021
Export value (1.000 BAM)	91,724	122,036	121,364	137,326
Import value (1.000 BAM)	200,325	236,729	194,939	218,248
Balance (export/import/1.000 BAM)	108,601	114,693	73,575	80,922

Source: <http://www3.rzs.rs.ba:8080/rzs/faces/indicators.xhtml>

In the economic structure of the Republic of Srpska, agriculture had a share of 7.56% in the domestic gross product during 2021, which makes it a very significant economic branch. In the period from 2012, the participation of agriculture in the total domestic product is continuously decreasing (*Table 3*).

Table 3: Gross domestic product and gross value added, current prices 2012-2021

Year	2012	2015	2020	2021
The GDP of the Republic of Srpska (1.000 BAM)	8,638,111	9,224,129	11,131,849	12,501,722
Sector of agriculture, forestry and fishing (1.000 BAM)	841,558	862,895	997,631	945,094
Participation of the agriculture and forestry sectors. and fishing in the total GDP	9.74%	9.35%	8.96%	7.56%

Source: Statistical yearbook of the Republic of Srpska, 2022. p. 150-152.

The reasons for the decrease in the share of agriculture in the total GDP can be found in the intensive growth of the processing industry. The agricultural sector, with its participation in the total GDP of Republika Srpska of 9.74% in 2012, was just behind wholesale and retail trade. The share of wholesale and retail trade in 2012 was 12.06%. In 2021, the largest share in the total GDP of the Republic of Srpska, in addition to wholesale and retail trade, with a share of 11.67%, is the processing industry, whose share in the total GDP is 7.86% from 2012 increased to 12.34% in 2021. It is precisely in the growth of the processing industry that opportunities are opening up to export agricultural products to foreign markets in a higher form of processing.

Although there are 8,704 people formally employed in the agriculture, forestry and fishing sector in 2021 (*Table 4.*), real employment is much higher and is estimated to be around 30%. The reason for this is in the so-called informal (occasional) employment, which includes family members who primarily live in rural parts of the Republic of Srpska.

Table 4. The number of employees in the Republic of Srpska

Agriculture, forestry and fishing / year	2010	2015	2020	2021
Total employees	244,453	245,975	274,227	279,030
Employees in the agriculture, forestry and fishing sector	8,176	8,345	8,473	8,704
Employees in the agriculture, forestry and fishing sector (%)	3.34%	3.39%	3.09%	3.12%

Source: Statistical Yearbook of the Republic of Srpska, 2022, p. 122

When we analyze gross salaries in the agriculture, forestry and fishing sectors, we can conclude that they are lower than the national average. Despite the fact that their nominal growth in the previous period, their participation in the total paid gross wages continuously at the level of around 80% (*Table 5.*).

Table5. Average paid gross salaries 2012-2021

Average paid gross salaries / year	2012	2015	2020	2021
Republic of Srpska (BAM)	1,349	1,340	1,485	1,546
Agriculture, forestry and fishing sector (BAM)	1,074	1,105	1,201	1,239
Agriculture, forestry and fishing sector (%)	79.61%	82.46%	80.88%	80.14%

Source: Statistical Yearbook of the Republic of Srpska, 2022, p. 138

When we talk about livestock production, it represents an important indicator of the development of the agricultural sector of the Republic of Srpska. The reason for this lies in the fact that by increasing the livestock stock, the meadows and pastures of which there are 170,000 hectares in the Republic of Srpska are used and which are not used enough. At the same time, livestock production has a great impact on agricultural production.

Table 6. Number of animals at the beginning of the year

Number of animals / year	2010	2015	2020	2021
Number of cattle	210,067	204,890	189,350	186,112
Number of goats	25,241	33,369	39,018	29,488
Number of sheep	649,317	615,028	656,311	591,076
Number of pigs	435,485	457,033	515,020	619,415

Source: <http://www3.rzs.rs.ba:8080/rzs/faces/indicators.xhtml>

In the Republika Srpska, there is a noticeable trend of decreasing the fattening of cattle, goats and sheep, while the breeding of pigs is increasing. One of the problems faced by livestock production is the relatively small number of animals per farm and the fragmentation of the farm. At the time of submission of this work, swine fever was raging in Republika Srpska and the number of euthanized units exceeded 15,000 pigs. This will certainly have a significant impact on the problems in livestock production and at the same time will not emphasize the problem of low level of veterinary protection and the absence of procedures and protocols in emergency situations in order to minimize the harmful consequences. the analysis of harmful consequences will always be the topic of one of the author's next works.

Table 7. Production of selected agricultural products

Product /year	unit	2010	2015	2020	2021	2022
Wheat, mercantile	tons	21,523	24,311	46,975	41,427	45,619
Rye, mercantile	tons	62	695	318	172	152
Barley, mercantile	tons	657	1,170	2,170	2,165	1,235
Oats, mercantile	tons	288	354	247	648	162
Corn, mercantile	tons	14,074	24,387	42,491	54,039	60,054
Triticale	tons	461	396	512	404	231
Buckwheat	tons	-	24	24	2	2
Sunflower	tons	410	385	1,582	856	747
Canola oil	tons	496	1,487	4,190	3,225	2,413
Soy	tons	2,652	2,816	16,746	8,462	13,991
Vegetable, total	kg	10,006,599	11,675,116	16,722,908	16,225,320	14,552,884
Fruit, total	kg	19,455,826	29,272,124	25,533,094	24,682,271	23,105,902
Fish, total	kg	3,527,445	2,982,543	1,857,456	1,906,324	1,948,613

Source: Institute of statistics of Republic of Srpska, 2023

And finally, important input parameters for serious analysis are the average prices of agricultural products (*Table 8*).

Table 8. Average price of selected agricultural products

Product name/year	unit	2010	2015	2020	2021	2022
Wheat, mercantile	BAM/ton	311	349	315	390	633
Rye, mercantile	BAM/ton	426	336	305	327	594
Barley, mercantile	BAM/ton	276	326	287	393	587
Oats, mercantile	BAM/ton	380	375	318	346	483
Corn, mercantile	BAM/ton	297	318	296	427	618
Triticale	BAM/ton	368	422	300	393	597
Buckwheat	BAM/ton	-	1,899	867	1,234	2,650
Sunflower	BAM/ton	573	678	652	1,033	1,198
Canola oil	BAM/ton	633	728	671	1,008	1,288
Soy	BAM/ton	592	669	661	1,013	1,092
Trout	BAM/kg	5	6	6	7	8
Carp	BAM/kg	4	5	6	6	8

Source: Institute of statistics of Republic of Srpska, 2023

Natural limitations and climate change

Soil degradation processes by definition result in a loss in soil productivity, although the ways in which this happens differ greatly with the various soil degradation processes. The degree to which the soil is presently degraded is related in a qualitative manner to the agricultural suitability of the soil, to its declined productivity, to its possibilities for restoration to full productivity and in relation to its original biotic

Functions (Lal, Stewart: 1992; Ilić et al., 2022). Among the main factors of land reduction, both in terms of surface and quality, is the process of land erosion, which threatens about 84% of the world's arable land fund, namely: 56% water erosion and 28% aeolian erosion (Oldeman: 1992). In Europe, about 157 million hectares are threatened by water erosion with a tendency to further progress, especially in the area of agricultural lands that occupy 50.5% of the total surface of Europe (Oldeman: 1992). Today, the problem of soil erosion as a permanent loss of agricultural land is viewed from both the water management and ecological aspects. The water management aspect of soil erosion is much better known. It is related to the transport of sediment in river flows, that is, to the problem of accumulation of material because the erosion process exceeds the transport power of the watercourse, resulting in water management facilities, of which accumulations are the most threatened. However, the ecological aspect of the problem of soil erosion and the removal of erosion work products is less well known. Soil erosion has a new "dimension" because the erosive material of land used for agricultural production usually contains certain amounts of substances (nitrates, phosphates, pesticides) which, when moved to another area, represent dangerous and harmful substances. In times of serious climate change, agriculture must be diversified and adapt to the climate calendar. It is of particular importance that the volume of production is insured by insurance agencies, and it is also important to invest in quality certification. Certifications and standards are not an activity that

is primary in RS agriculture. It is important to consider obtaining certifications for organic production, food safety or other relevant standards. Certifications can improve consumer perception of your product and give you access to better markets.

Discussions

The Ministry of Agriculture, Forestry and Water of the RS annually awards financial incentives for the development of agriculture and villages. The Ministry adopts the Rulebook on the conditions and methods of obtaining monetary incentives for the development of agriculture and villages.

The Government of the RS and the relevant ministries are continuously working to improve the agricultural sector in the direction of increasing the income and quality of life of the agricultural and rural population, adapting to the rules and standards of the EU and the World Trade Organization, and increasing the competitiveness of this sector.

The provision of incentive funds for the development of agriculture and rural areas is regulated by law and by-laws and plans that are in accordance with the Strategy for the Development of Agriculture of the RS until 2015 and the Strategy for Rural Development until 2015, and the funds for incentives are allocated to basic groups of measures, such as: support for production and income, support for rural development, intervention measures and emergency needs, measures related to the protection of animal health, remediation of the consequences of natural disasters, primarily floods, and intervention measures on the market - purchase of market surpluses. The goal of these activities is to increase the physical volume of production, increase the quality and efficiency of production, and reduce costs and risks in agricultural production.

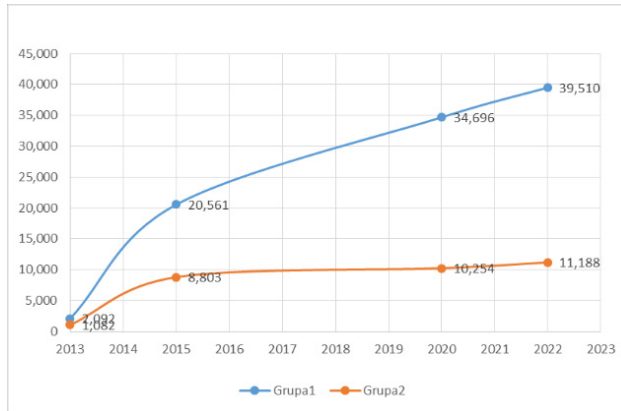
When we analyze the number of registered farms and the number of employees on farms who are beneficiaries of incentives in the Republic of Srpska, we see an exponential growth in the number of farms in the period 2013-2022 (*Table 9.*). However, the average area under cultivation (per farm) was reduced in the same period from 10.3 hectares to 5.2 hectares, which indicates that the beneficiaries of the analysis are encouraged for means and all masses.

Table 9. Number of registered agricultural holdings, number of employees on agricultural holdings and the total area of holdings receiving incentive funds (RS)

Year	2013	2015	2020	2022
Total number of farms	2,092	20,561	34,696	39,510
Number of employees	1,082	8,803	10,254	11,188
Total area of farms	21,594	144,125	190,142	206,776

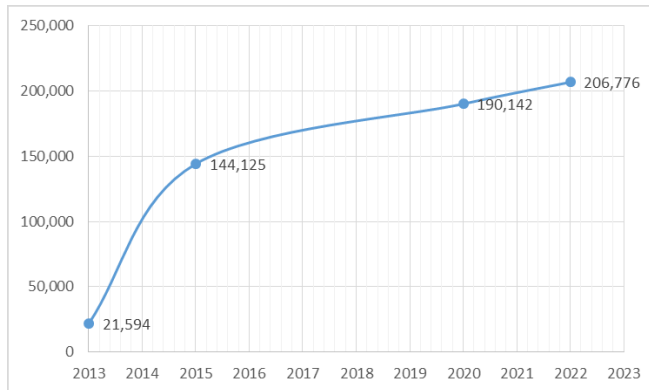
Source: Internal data from the register of the Ministry of Agriculture

Figure 1. The number of registered farms and the number of employees on farms



Source: Table. 9

Figure 2. The total area of farms of beneficiaries of incentive funds in the Republic of Srpska



Source: Table. 9

During the writing of this paper, these data were not publicly available and the transparency of the data really represents a problem in the preparation of a serious analysis that aims to improve the state of agriculture in the Republic of Srpska. In the mentioned period, there was an increase in the total area of used agricultural land from 361,649 to 398,991 hectares, which is an increase of 10.33% compared to 2010. It is precisely in this segment that we find one of the reasons for the growth in the production of agricultural products and, therefore, the increase in exports, which is shown in table 2. The conversion of part of the areas that are currently meadows, the area of which, according to the data for 2022, is 102,787 hectares, into other types of agricultural of land, as well as the further increase of the total used arable land are a prerequisite for further growth of agricultural production and export of agricultural products. At the same time, the analyzes showed that there are geothermal sources on almost 50% of agricultural land, which is one of the prerequisites for investing in the production of agricultural products in greenhouses, which would enable uninterrupted production throughout the year.

Deficit in the exchange of agricultural products with foreign countries, after a downward trend in the period 2010-2020. year, in 2021 it increased by as much as 10% compared to 2020, which leads us to the conclusion that it is necessary to approach an additional set of measures to improve domestic production. Due to geostrategic events, primarily the conflict in Ukraine, which additionally affected the disruption in the price market of both agricultural products and mineral fertilizers, we can expect that the data for 2022 and 2023 will be less favorable for the domestic economy in terms of the foreign trade deficit of the Republic of Srpska . The reason for this lies in the fact that due to the general increase in the prices of agricultural products, there will be an additional increase in the deficit for the simple reason that we still import more agricultural products than we export.

In the analyzed period, there was a partial change in the structure of produced agricultural products (*Table 7.*). The biggest changes occurred in the segment of grain production (wheat, corn, barley...). The reason for the above can be found in the fact that they are less labor-intensive, while at the same time a simpler method of storage and sale. Subsidizing wheat production on two basis (ha and kg) was one of the reasons for increased wheat production.

In the analysis of the average prices of agricultural products (*Table 8.*), a serious increase in prices is visible in 2022 compared to previous years in which prices were relatively stable. In any case, this trend will lead to an increase in the production of agricultural products in the coming period.

Incentives approved on the basis of the rulebook on the conditions and methods of obtaining monetary incentives for the development of agriculture and villages, the rulebook on the conditions and method of obtaining monetary incentives for capital investments in agricultural production and the rulebook on the conditions and method of obtaining support for agricultural producers in the conditions caused by the corona virus pandemic in in 2022. The total amount of incentives for 2022 was KM 106,414,270 BAM (Government od RS data: 2022). Total budget of the RS for 2022 approx. 4,024 billion BAM. In 2021, incentive funds were approved on the basis of the rulebook on the conditions and methods of obtaining financial incentives for the development of agriculture and villages, the rulebook on the conditions and methods of obtaining financial incentives for capital investments, the rules for the operation of the agricultural economy and the rules for the operation of the economy and economic producers in conditions caused by the virus pandemic corona. The agrarian budget amounted to 74,995,206 BAM, the funds of the Compensation Fund amounted to 13,199,790 BAM, which in total amounted to 88,194,996 BAM (Government od RS data: 2021). In 2023, the number of beneficiaries approved for the use of regressed diesel fuel is 42.478 (Government of RS:2023). Considering the costs of agricultural production viewed through the marginal cost, it can be concluded that the number of beneficiaries of this subsidy is equal to the number of producers who will do business more seriously in 2023 in the RS.

Resource analysis is a basic step in order to identify potential potentials as well as competition. Current trends in agriculture and the food industry show the cultivation of traditional varieties and species in the RS. RS agriculture can think about the unique advantages of agricultural products and services such as organic production, traditional cultivation methods, product quality or anything else that seriously sets it apart from the competition. Diversification of production seriously reduces the risk of market fluctuations and makes it possible to find a new market niche. Product quality plays a key role in gaining consumer trust and building a good reputation. It is mandatory to invest in modern equipment and technology in order to improve the quality of production.

Conclusions

The agriculture of Republic of Srpska is not technologically ready for the challenges of climate change. And yes, the traditional way of production and production preparation is primary. New technologies are partially applied on a certain number of farms, while a large part of farmers depends on climatic conditions from year to year. This is an area that must be significantly improved as soon as possible. Irrigation of arable land and provision of sufficient quantities of water for livestock is a condition without which no yield can be expected. The question is rightly raised, whether investments in incentives have resulted in an increase in the degree of dependence on climate change and whether the volume of production has increased. A special question is how to improve the level of safety of produced food. Funds are allocated from the ministries and there is a noticeable trend of growth in the allocation of incentives. However, achieving a competitive price on the market has not yet been defined as the final outcome. A free market economy is an economy of scale based on quality and planned quantities. The growth in the number of agricultural farms is to a significant extent a consequence of the division of larger farms into smaller ones in order to pay a larger amount of incentives. This can be clearly concluded when the growth in the number of farms and the number of employees in farms are correlated. The government must have quality monitoring for this kind of practice, which is not illegal but does not bring the desired results. More funds and education must be provided in the field of product quality improvement. Product quality and price are eliminatory indicators for market participation. It is important to ensure access to education and counseling for farmers in order to improve their skills and knowledge of modern agricultural practices and the market. The availability of laboratories must be better, quality control and risk monitoring must become an integral part of agricultural activity.

Conflict of interests

The authors declare no conflict of interest.

References

1. Ilić, V., Marković, S., Pušara, A., & Avakumović, J. (2022). The role of social management in business organizations. *Oditor*, 8(3), 96-116. <https://doi.org/10.5937/Oditor2203096I>

2. Radosavac, A., Berjan, S. (2019). *Entrepreneurship in the agricultural industry of the Republic of Srpska*. Faculty of Applied Management, Economics and Finance Belgrade. Belgrade
3. Radosavac, A. (2013). *Entrepreneurship as a Development Factor Agriculture of Republic of Srpska*. University of Novi Sad, Faculty of Agriculture. PhD dissertation, Novi Sad
4. Vaško, Ž., Mrdalj, V., Brković, D. (2016). *Analysis of the policy of encouraging the development of agriculture and villages in the Republic of Srpska*. Institut za ekonomiku poljoprivrede i ruralni razvoj Poljoprivrednog fakulteta Banja Luka. Banja Luka
5. Lal, R., B. A. Stewart, B.A. (1992) *Advances in Soil Science*, Soil Restoration Volume 17, Springer-Verlag, New York
6. Berjan, S., El Bilali, H., Despotovic, A. & Driouech, N. (2013). *Agricultural Extension and Extension Services in Bosnia*. IJERD – International Journal of Environmental and Rural Development, 4136-141.
7. Gordana Rokvić, G., Vaško, Ž. (2016). *Stages of Development of Agricultural Extension Service in Bosnia and Herzegovina*. Agro-knowledge Journal, vol. 17, no. 4. 359-369. doi:10.7251/AGREN1604359R
8. Oldeman, L. R. (1992) *Global Extent of Soil Degradation*. ISRIC Bi-Annual Report 1991-1992, pp. 19-36 . AJ Wageningen, Netherlands. Retrived from <https://edepot.wur.nl/299739>
9. Vlada Republike Srpske, Retrived from https://www.vladars.net/sr-SP-Cyrl/Vlada/agencije/aap/Documents/svi%20korisnici_2022_437572961.pdf (July 2023)
10. Vlada Republike Srpske (2021). *Agriculture Development Strategy of the Republic of Srpska 2021-2027*, Retrived from <https://www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mps/Documents/Strategija%20razvoja%20poljoprivrede%20i%20ruralnih%20podru%C4%8Dja%20RS%202021-2027.pdf>
11. Institute of statistics of Republic of Srpska. (2022). *Statistical Yearbook*. second, corrected edition Retrived from <http://www3.rzs.rs.ba:8080/rzs/faces/indicators.xhtml> (July 2023)
12. Institute of statistics of Republic of Srpska. (2022). *Statistical Yearbook*. second, corrected edition Retrived from. 122
13. Institute of statistics of Republic of Srpska. (2022). *Statistical Yearbook*. second, corrected edition Retrived from.138
14. Institute of statistics of Republic of Srpska. (2022). *Statistical Yearbook*. second, corrected edition Retrived from. 150-152
15. Ministry of Agriculture, Forestry and Water Management of the Republika Srpska (MAFWM-RS). (2010). *Strategija savjetodavnih aktivnosti u poljoprivredi (Strategy for the development of Agricultural Extension Service in the RS)*. Banja Luka: MAFWM-RS
16. Internal data from the register of the Ministry of Agriculture