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Original Scientific Paper

POULTRY PRODUCTION IN THE REPUBLIC OF SERBIA - CURRENT SITUATION AND PERSPECTIVES

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Summary

Over the last decades, poultry production has grown from a secondary activity in rural households into a highly specialized industrial branch of livestock production that has great potential for the development of the economy of many countries. A total of 21.6 million poultry are currently raised in the Republic of Serbia, of which 12.5 million are broilers and 7.5 million are laying hens. In comparison with the results of the Census of Agriculture 2018, there is a noticeable decrease in the total number of poultry by 7.3%, i.e. by as much as 23.25% compared to the results from 2012. Egg production is at the level of slightly more than 1.5 billion pieces, which represents the minimum recorded level of egg production during the previous ten years. On the other hand, during 2023, the production of poultry meat was 127,000 t, i.e. at a 10% higher level compared to the previous year and 13.6% more compared to the five-year average. Serious efforts are necessary in the structural reform of this sector of agriculture, but also of rural areas, in terms of strengthening their economic efficiency and competitiveness.

Key words: poultry production, nutrition, broilers, layers.

INTRODUCTION

Thanks to the biological characteristics of poultry (high reproductive capacity, rapid growth, short generation interval and efficient use of food), the development of poultry production in the world, as well as in our country, has been intensified in recent decades. This applies mostly to chickens, which represent the basis of modern industrial production, but also to turkeys, which are represented in much smaller numbers. New and improved old hybrids of high genetic potential were created, which resulted in a significant shortening of the duration of fattening, faster sexual maturation

of individuals, shorter laying time and a longer period of exploitation. However, it should be noted that this type of selection has led to some problems. This primarily refers to their reduced resistance, higher incidence of metabolic disorders, greater requirements regarding care and conditions, high nutrient requirements and the necessity of using nutrients of good biological value and digestibility (Kleyn et al., 2021). Regardless of all the challenges it faces, during the last decades, poultry production has grown from a secondary activity in rural households into a highly specialized industrial branch of livestock production, which enables the production of significant quantities of high-quality products such as meat and eggs in a relatively short period of time, but also feathers, organic fertilizer and accompanying products that remain after slaughtering and processing carcasses. Because of this, as well as the rapid turnover of capital it provides, it has great potential for the development of the economy of many countries. The dietary properties of meat and the high nutritional value of eggs, as well as their relatively low market price, make these products acceptable by all cultures and nations, and at the same time very desirable and suitable foods in people's daily diet (Marković and Baltić, 2018).

Current situation in poultry production

Based on the results of the 2023 agriculture census (RZS, 2023), a total of 21.6 million poultry (21,604,693) are raised in the Republic of Serbia, of which 12.5 million are broilers (12,468,831) and 7.5 million are laying hens (7,489,642). Compared to the year 2022, the total number of poultry is 3.6% lower, with the number of laying hens reduced by 5.2%. However, this negative trend is much more pronounced if the results of the agricultural census conducted in 2012 and 2018 are analyzed (RZS, 2012; RZS, 2018). Thus, in 2018, the total number of poultry was 23,184,408, with a decrease of 7.3%, i.e. by as much as 23.25% when it comes to 2012 (the total number of poultry then was 26,627,308).

In relation to regions of the Republic of Serbia, poultry is grown the most in Vojvodina region, with a total of 9,676,620 individuals, (which represents 45% of the total number), followed by Šumadija and Western Serbia, Southern and Eastern Serbia and the Belgrade region.

The structure of farmed poultry according to species indicates that chickens are dominantly represented with 98% (broilers 58%, and laying hens 35%), while the participation of ducks, turkeys and geese is 0.5%, 0.4% and 0.3%, respectively. Compared to the five-year average, there is an evident decline in the number of turkeys (-25%) and ducks (-14%), while the number of geese is on the rise (+43%), thanks primarily to the large increase in the number of geese in 2023 compared to 2022, by as many as 35 thousand units (+150%).

Poultry owners are almost entirely registered as family farms (220,324), with a very small number of legal entities (147) and entrepreneurs (44). It is interesting that legal entities have more than 8.5 million poultry (8,553,613), that is, approximately 40% of the total number of poultry. Likewise, the consolidation of farms engaged in poultry

production is also evident. Namely, five years ago the number of farms with up to 50 animals was 23% of the total number of farms (RZS, 2018), while now this is at the level of 16%. At the same time, the representation of farms with over 5,000 units increased from 58% to 71.5%. The presented results support the fact that poultry production takes an industrial character and requires a corporate approach.

It is estimated that the total industrial production of animal feed in our country on an annual basis amounts to slightly over 1.4 million tons, of which poultry feed takes a share of 33%. Table 1 presents data of the production of complete, supplemental and premixes for poultry feed in the last four years (RZS, 2023).

Table 1 Industrial production of poultry feed in the Republic of Serbia

Industrial production of poultry feed (in tons)	Realized production/year			
	2021	2022	2023	2024*
Complete mixes	441.463	456.217	489.734	308.473
Supplemental mixes	7.911	6.862	8.220	5.371
Premixes	2.223	1.963	1.207	737

* January-July

Economic indicators of production

Of the total value of agricultural production in the Republic of Serbia in 2019, animal husbandry comprised about 29%, with a value of EUR 1.49 billion, which represents 15% more compared to 2015. The value of livestock production observed by type of animal was as follows: cattle production was EUR 275.5 million, pigs EUR 540.4 million, poultry EUR 127.9 million, and sheep and goats EUR 90.2 million (RZS, 2020). According to data from the Economic Accounts for Agriculture in the Republic of Serbia, in the period from 2012 to 2022, in the structure of the value of livestock production, the average share of livestock breeding is 68.2%, and livestock products are 31.8%. In the breeding of livestock, in the observed period, the largest share is the breeding of pigs (51.8%), followed by the breeding of cattle (27.0%), poultry (12.4%), sheep and goats (8.6%) and horse breeding (0.2%).

The two main lines of production in animal husbandry relate to the breeding of broilers and the production of table eggs are the most represented branches of animal husbandry on farms in the Republic of Serbia. Out of ten farms of all types, almost seven raise poultry. At the same time, poultry farming is the most industrialized branch of agriculture, where as much as 37.3% of poultry heads are raised on only 225 farms that have the status of legal entities and entrepreneurs. In terms of production value, poultry farming ranks third in livestock farming with a share of 12%. According to the official data of the Statistical Yearbook of the Republic of Serbia for 2020, the production of chicken eggs and broilers accounted for 4.9% of the total value of agricultural production in 2019. It is obvious that the importance of poultry farming is growing both on the world market and on the market of the Republic of Serbia (Scanes, 2007).

Compared to 2022, the price of broilers in 2023 is 7% lower, while it is 19.7% higher compared to the five-year average price (Table 2). The prices of animal feed and energy, which have increased significantly in 2022, as well as the prices of poultry meat products, which are largely imported, have a great influence on this. At the same time, increased slaughtering and a greater supply of meat caused a lower price of meat on the market.

Table 2 shows the average annual purchase prices of poultry producers for the period 2014-2023 (RZS, 2023).

Table 2 Average annual purchase prices of poultry producers for the period 2014-2023

Year	Purchase prices in RSD/kg	Purchase prices in EUR/kg
2014	121.27	1.03
2015	112.91	0.94
2016	111.98	0.91
2017	111.76	0.92
2018	104.71	0.89
2019	95.57	0.81
2020	96.53	0.82
2021	112.88	0.96
2022	141.74	1.21
2023	132.00	1.13
Index 2023/22	93.13	93.29
Index 2023/18-22	119.69	120.17

In the foreign trade exchange of poultry meat, a multi-year deficit has been recorded in the past period, with a growing trend present. The value of poultry meat exports in 2023 is 5.7% higher than the previous year, which is 20% above the level of the average five-year export value. During 2023, the value of imported poultry meat was 12% higher than the previous year, i.e. even 61% higher than the average five-year import value of this type of product. Table 3 shows data on foreign trade of poultry meat in the period from 2019 to 2023 (RZS, 2023).

Table 3 Foreign trade exchange of poultry meat (carcass weight equivalent) (000 EUR)

Year	2019	2020	2021	2022	2023
Export	16.827	16.425	17.549	19.832	20.978
Import	35.348	37.655	43.821	59.925	67.164
Balance	-18.521	-21.230	-26.272	-40.093	-46.186

During 2023, the price of eggs increased by 13% compared to the previous year, reaching a level even 52% higher than the average five-year price (Table 4). The prices of animal feed and energy had a significant impact on the price of eggs, which were significantly increased during 2022 and 2023, with simultaneous inflationary pressure. Eggs from the Republic of Serbia are exported exclusively to Bosnia and Herzegovina, Montenegro and North Macedonia, while egg products are imported in large quantities from member states of the European Union (EU), despite the fact that there are two approved facilities for egg processing in the Republic of Serbia ("Takovo" from Indija and "Melange" from Valjevo).

Table 4 shows the average annual purchase prices of table egg producers for the period 2014-2023 (RZS, 2023).

Table 4 Average annual purchase prices of table egg producers for the period 2014-2023

Year	Prices in RSD/piece	Prices in EUR/piece
2014	8.24	0.07
2015	7.79	0.06
2016	7.69	0.06
2017	8.55	0.07
2018	7.70	0.07
2019	8.04	0.07
2020	7.99	0.07
2021	8.22	0.07
2022	11.80	0.10
2023	13.38	0.11
Index 2023/22	113.39	113.59
Index 2023/18-22	152.91	153.52

The most important problems burdening poultry production

Given that the acquisition of quality breeding or fattening material is a basic step in poultry production, first of all, it should be mentioned the fact that unfortunately not a single hybrid has been created in our country to date, but production is based only on the import of breeding heads and eggs from European countries. They are procured through private companies that are mainly focus on profit, while the quality and the problems of farmers are neglected. Imported eggs are sometimes out of class, so after their incubation and breeding young, a parental flock is formed, which during the production cycle constantly has bad production results (Jokić et al., 2004).

Farmers who fatten broilers and turkeys or produce table eggs are in similar situation (as producers of parent flocks). Namely, due to the unstable market, the supply of one-day-old chicks (for fattening or future litters) varies a lot during the year, and therefore

their price. Unfortunately, we still have the old habit of abandoning production if one more dinar cannot be earned on the invested dinar.

Due to the irregularity of the market, the prices of meat, eggs and poultry feed vary significantly over a year. It often happens that the price of food does not follow the price of meat and eggs and vice versa. Also, the price of meat on the market is not adjusted when the price of fattened chicken on the farm changes (increases or decreases). It is often the case that imported chicken (characterized by our housewives as "bloated, full of water") is sold at a lower price than domestically produced, high-quality chicken, as well as that fatty and lean carcasses or small and large eggs have the same price on the market (Jokić et al., 2023). To the greatest extent, this disrupts possible good cooperation between animal feed producers, farmers and the processing industry. At the end of the production cycle (fattening or production of consumption eggs), another big problem arises, how to bring the fattened heads or consumption eggs on the market and at what price. This is left to the producers themselves, who are technically unequipped and without an organized performance. Unfortunately, they often have to sell their products at a low price, because with each further extension of production, they enter into an even greater financial problem.

It should also be emphasized that farmers (mostly small individual producers) bear a large part of the responsibility, because, whether due to ignorance, negligence, or simply ignoring the instructions for the use of veterinary drugs, they use them during the laying period, or until the end of fattening, which results in the appearance of residues in meat and eggs. Although our country has a very good program for controlling the above substances, without raising the awareness of the producers themselves about the importance of the correct use of drugs, this problem can never be completely solved. We must not forget the fact that we are among the leading countries in Europe in terms of the number of carcinogenic diseases (Jokić et al., 2004). Due to similar failures, and in the race for profit, not so long ago, major failures occurred in the world (the case of carcinogenic dioxin in Europe and SARS in Asia), when hundreds of millions of fattened chickens were mass-culled (Ghimpețeanu et al., 2014; Lam et al., 2003).

Due to increase market competition, producers are forced to try to solve the problems independently, without the help and advice of experts. Thus, poultry production today is mainly carried out by people who do not know this field sufficiently, and do not have agronomists and veterinarians engaged on their farms. Because of their lack of knowledge, they mostly adhere to established technologies, to which they are accustomed (because they are afraid of introducing innovations), and which have long been overcome and abandoned in production (Radulović et al., 2024).

Today, various programs for formulating meals are in use, which, in addition to the chemical composition and recommendations for a particular type and category of poultry, also take into account the price of the feed, as well as numerous other parameters such as electrolyte balance, buffering and antioxidant capacity of the feed. However, the acquisition of a quality program also requires the engagement of a

professional who will manage it. There are numerous examples in the field where farmers have independently, in order to achieve a lower price for the mixture, used cheaper feeds of poorer quality in a high percentage, and then achieved very poor production results. Likewise, they often accept the so-called field recipes that gave a good effect on a particular farm, without taking into account the differences that exist between the hybrids used, zoohygienic conditions or problems that are present in their facility. Errors can also occur among designers (programmers) themselves, who are unfamiliar with the field of animal nutrition, so their programs often do not have good usability, but instead require additional manual work by nutritionists (Radulović et al., 2018).

Food from foreign producers is often praised in the field, although all the prerequisites exist for food of the same, or even better quality, to be produced from domestic raw materials, given that in terms of competence we are not behind foreign experts. Likewise, there is a large number of imported additives on the market, and some of them are often attributed with unrealistic properties. If their effects have not been tested in the production conditions that are common in our country, then they generally represent only beautifully presented data on impeccably designed marketing material (flyer). Often, due to the "human factor", a larger number of additives with the same mode of action are unnecessarily used in one and the same mixture, which significantly increases its cost. It is important to note that additives should never be used as a substitute for inadequate housing conditions, incompetent nutritional management, mistakes made in hatchery facilities, and poor genetic potential of the flock.

Sectoral SWOT analysis

Based on the analysis of the situation by sector in agriculture and rural development, data and other inputs were obtained that enable the preparation of a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats). In a summarized manner, the SWOT table systematizes knowledge about the strengths and opportunities for improving the situation in this agricultural sector and in the field of rural development, which warns of the weaknesses and threats that the agricultural sector and rural areas may encounter in the future (Tables 5 and 6). This information represents the basis for the systematization of the objectives, measures and activities of the Strategy and accompanying documents, and therefore serves as a guide for political decision-makers (Rulebook, 2014; Rulebook, 2023).

Table 5 SWOT analysis for the meat sector

STRENGTHS	Sufficient fodder production
	Satisfactory workforce numbers
	The existence of a large number of educational and scientific institutions
	Good regional representation of advisory services

WEAKNESSES	Low financial capacity of the sector
	Shredded production and small production units
	Insufficient education of producers and small meat processors
	Insufficient level of compliance with standards (animal welfare, food safety and environmental protection)
	Outdated technology, facilities, machines and equipment
	Poor farm management skills
	Lack of an efficient system for disposal of animal waste and biosecurity
	Insufficient use of renewable energy sources
	Lack of adequate advisory support and training
	Weak transfer of technology and low level of research and development
OPPORTUNITIES	Good strategic and financial environment at national and EU level
	Increased consumer demand for local products and short chain values
THREATS	Frequent occurrence of epizootic diseases
	Price change on the market

The number of poultry slaughtered over the last decade has averaged around 65 million heads, with the highest number of heads slaughtered in 2019. In 2023, this number is 7% higher than the previous year and amounts to 69.6 million heads. The number of slaughtered heads in 2023 is 1.5% higher than the five-year average. The average gross mass of slaughtered poultry in 2023 increased minimally, from 2.5 to 2.6 kg, while the net mass remained unchanged compared to 2022 (1.8 kg). Poultry meat production in the previous ten-year period ranged from 86 thousand tons to 115 thousand tons, in 2020 (with an average annual consumption of 17 kg per capita), up to a record level of 127 thousand tons, recorded in 2023. During 2023, poultry meat production was achieved at a 10% higher level compared to the previous year and 13.6% higher than the five-year average. The increase in poultry meat production is the result of an increase in poultry slaughtering, with a noticeable increase in the share of slaughtered heads in slaughterhouses in the total number of slaughtered poultry over the past decade – from 55% of slaughtered heads in slaughterhouses in 2013 to 99% of slaughtered heads in slaughterhouses in 2023 (MPŠV RS, 2023). These results support the fact that poultry meat is becoming a product that is slowly moving from small-scale production on farms to large industrial complexes. At the beginning of December 2019, the register of approved facilities of the Veterinary Directorate of the Republic of Serbia contained 78 approved facilities for slaughtering, cutting and processing white meat (poultry), as follows: 35 combined facilities for slaughtering, cutting and processing poultry; 21 facilities for slaughtering poultry; 22 facilities for slaughtering and cutting poultry (Rulebook, 2023).

In the EU, poultry meat production continued to decline in 2022, after reaching a record level in 2020. It is estimated that around 13 million tonnes of poultry meat were produced in the EU in 2022, which is 1.5% less than in 2021. This result represents an interruption of the significantly increasing trend of poultry meat production in the EU until 2020. In 2022, the largest poultry meat producers in the EU were Poland (21% of EU production, 2.7 million tonnes), Spain (12.6%, 1.6 million tonnes), Germany (11.9%, 1.5 million tonnes), France (11.6%, 1.5 million tonnes) and Italy (9.3%, 1.2 million tonnes). Contrary to the general trend, poultry meat production in Poland increased significantly (+7.5%) in 2022, reaching a new record level, while in Spain it remained relatively stable (+0.6%). In contrast, significantly lower production was recorded in France (-8.7%) and Italy (-11.8%) (Eurostat, 2022).

Table 6 SWOT analysis for the egg sector

STRENGTHS	Quantity and quality of fodder
	Tradition and well-known production technology
WEAKNESSES	Insufficient compliance with animal welfare, hygiene and environmental standards
	Older population in rural areas
	Shredded production and small production units
	Lack of bio safety measures in extensive production
OPPORTUNITIES	Increasing consumer demand for products from sustainable production
	Favorable financial prospects for sustainable production systems
THREATS	Occurrence of epizootic diseases
	Insufficient capacity to meet animal welfare standards

Egg production in the Republic of Serbia in 2023 is at the level of slightly more than 1.5 billion pieces, which represents the minimum level of egg production recorded in the previous ten years (the stated production in 2018 was 1.79 billion). This trend is expected, bearing in mind the decrease in the total number of laying hens in 2023. Their number fluctuated a lot in the previous decade, with a slight downward trend, which is also present during 2023, given that the number of laying hens is 2.6% lower than the previous year, i.e. 9.5% below the five-year average. The trend in the number of laying hens also had an impact on the number of eggs laid, which in 2023 was 7% lower compared to the previous year, while compared to the five-year average, this number was 12% lower (MPŠV RS, 2023). Comparing the data on the number of laying hens and the number of farms engaged in their breeding in the 2012 and 2023 Census of agriculture (RZS, 2012; RZS, 2023) and the Survey on the structure of agricultural holdings in 2018 (RZS, 2018), a slight increase in the number of laying hens can be noted according to the Survey compared to the 2012 Census, with the number reaching

nine million heads, as well as an unchanged average number of hens per farm (30 heads per farm) in both investigations. However, according to the results of the 2023 Census, the average number of heads per farm increased to 42, which speaks in favor of consolidation of farms. However, even though there was a consolidation of production, according to the 2023 Census, the number of laying hens is 12% lower than the results of the 2012 Census, while the number of farms decreased by 36% in the same period. Based on the above data, it can be said that the agricultural sector of the Republic of Serbia possesses significant resources, both in terms of volume and their diversity, which provides significant opportunities for production growth, diversification of products and services, and the creation of new, innovative products and practices. On the other hand, serious efforts are necessary to structurally reform the agricultural sector and rural areas, in terms of strengthening their economic efficiency and competitiveness. Most facilities for breeding and fattening animals in the Republic of Serbia must be reconstructed or adapted, in order to meet the necessary requirements for breeding and animal welfare, as well as standards in the field of environmental protection, bearing in mind the special importance attached to the improvement of biosecurity on farms, manure management and the use of renewable energy sources. It is necessary to modernize the production infrastructure in order to achieve better sustainability and competitiveness on the market, while the production itself must be more economical and efficient.

The future of animal husbandry, which is labor-intensive and employs the largest number of people in rural areas, is not only a question of agricultural development, but also related to rural development policy. Support within the framework of agricultural policy and rural development policy is defined by the Law on Incentives in Agriculture and Rural Development (Rulebook, 2013), which, in addition to the types of incentives, prescribes the conditions, methods of use and beneficiaries of incentives in agriculture and rural development. On the basis of this law, a regulation on the distribution of incentives in agriculture and rural development for each calendar year is adopted, which allocates budget funds, prescribed by the law on the budget of the Republic of Serbia for the calendar year. Incentives in agriculture and rural development are financed from the budget of the Republic of Serbia, while certain support measures are financed from EU funds and international donor funds. During 2023, within the framework of the national agricultural policy and rural development policy, the following incentives were implemented:

1. Direct payments (premiums, incentives for production, rebates), which through incentives for parent hens of light type amount to RSD 100/head, and for parent turkeys RSD 3,300/head. By introducing this support scheme, a signal is sent to the producers that it is necessary to work on preserving the number of the heads, as well as on improving the racial structure of the herd and the production characteristics of their own heads. The effect of the application of incentives for breeding cattle will be manifested through the improvement of the quality of livestock products, as well as through the increase in the quantity
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of products placed on the market. Also, the implementation of this measure increases the competitiveness of producers, considering that it affects the reduction of cost prices.

2. Measures of rural development,
3. Special incentives,
4. IPARD incentives,
5. Credit support in agriculture.

A clear demarcation between beneficiaries of IPARD support and national rural development support measures (NPRR) is presented in Table 7.

Table 7 Demarcation between beneficiaries of IPARD support and national rural development support measures (Rulebook, 2023)

INVESTMENTS IN PHYSICAL ASSETS OF AGRICULTURAL FARMS		
Sector	IPARD	NPRR
Meat sector	Agricultural holdings that at the end of the investment have a capacity of minimum 1,000 and maximum 10,000 turkeys, and/or minimum 300 and maximum 3,000 geese, and/or minimum 5,000 and maximum 50,000 broilers per cycle, and/or a registered facility for the production of a parent flock of heavy-type chickens, at the end investments. • Agricultural farms with a building capacity of more than 10,000 turkeys and/or more than 3,000 geese, and/or more than 50,000 broilers per turn, at the beginning of the investment, are acceptable for investments in the construction and/or reconstruction of storage capacities for manure and/or in specific equipment and mechanization for manure manipulation facilities, as well as investments in the production of energy from renewable sources on the farm and investments in improving biosecurity measures.	Farms that at the end of the investment have a total capacity of a maximum of 999 turkeys and/or 299 geese and/or 4,999 broilers per turn
Egg sector	Farms with a total facility capacity of a minimum of 5,000 to a maximum of 200,000 laying hens in operation, i.e. agricultural farms that have a registered facility for the production of a parent	Agricultural farms with a total facility capacity of up to 4,999 laying hens in operation

	flock of light-type hens, i.e. raising of laying hens, at the end of the investment; • Agricultural farms with a facility capacity of more than 200,000 laying hens, at the beginning of the investment, are acceptable for investments in the reconstruction of the facility in connection with the replacement of old non-enriched cages and/or equipment in order to meet EU standards, as well as for investments in the production of energy from renewable sources on the agricultural economy.	
INVESTMENTS IN PHYSICAL ASSETS CONCERNING THE PROCESSING AND MARKETING OF AGRICULTURAL PRODUCTS		
Meat processing and marketing sector	• Users who are registered in the Register of Objects (Rulebook, 2005) at the end of the investment • In the case of slaughterhouses, users with a minimum slaughter capacity of 500 turkeys and geese or 5,000 poultry per day at the end of the investment are acceptable. • In the case of meat cutting and/or processing plants, users with a minimum cutting or processing capacity of 500 kg of processing per day at the end of the investment are acceptable.	Users registered in the Register of Objects (Rulebook, 2005) • In the case of slaughterhouses, users with a maximum slaughter capacity of up to 499 turkeys and geese or 4,999 poultry per day at the end of the investment are eligible. • In the case of meat cutting and/or processing plants, users with the maximum cutting or processing capacity are acceptable
Egg processing and marketing sector	Micro, small and medium-sized legal entities, in accordance with the EU recommendation on small and medium-sized enterprises (SME), are acceptable at the end of the investment	Support to users for investments related to egg processing and marketing will be implemented only through the IPARD program.

The general conclusion is that support measures for smaller farms are planned through the National Rural Development Program, and for smaller and medium-sized farms through the IPARD program (Instrument for Pre-accession Assistance for Rural Development). At the same time, support for small farms is aimed at increasing income and economic self-sustainability, while support for medium-sized farms is based on improving efficiency and competitiveness.

Systemic measures in poultry farming

Agriculture and rural development strategy of the Republic of Serbia for the period 2014-2024 (Rulebook, 2014) represents a strategic document of the highest level, which defines the vision, goals, priority areas of action, as well as directions for the development of agriculture and rural development of the Republic of Serbia in the previous ten-year period. Since the validity and application of this document ends at the end of 2024, the drafting of a strategic document for the next period has been started and is ongoing. National programs for agriculture and rural development are adopted on the basis of strategy (Rulebook, 2014), as medium-term program documents, which cover a three-year period and contain plans and dynamics of the implementation of measures. In addition, the national programs contain activities and measures, which are implemented with the aim of further harmonizing the national agricultural policy with the EU's Common Agricultural Policy (CAP). The previous national program for agriculture was implemented in the three-year period from 2018 to 2020 (Rulebook, 2017). The next national program for agriculture was supposed to be implemented starting in 2021, but due to extraordinary circumstances caused by the COVID-19 pandemic, the drafting of the document began in 2021, with the deadline for implementing the document starting in 2022, in the next three-year period (Rulebook, 2022). National program for agriculture for the period 2022-2024 (Rulebook, 2022) is based on the Agriculture and Rural Development Strategy of the Republic of Serbia for the period 2014-2024 (Rulebook, 2014) and represents its further development at the medium-term (three-year) level. A special chapter in this program refers to the standardization of goods in domestic and international trade, which ensures clearly defined quality, expressed through market standards. Application of market standards enables easier communication between market participants, as well as easier market placement. By establishing market standards, the buyer is sure that he is buying goods of exactly the classified quality, while the seller should have the same treatment as all sellers of the same product category. Most of the regulations, which regulate the market standards and quality of agricultural and food products, and which are currently applied in the Republic of Serbia, are not harmonized with international regulations and standards, which mainly hinders the placement of Serbian products on the foreign market. The harmonization of domestic regulations in this area with international regulations and standards will greatly contribute not only to the increase in exports, but also to the regulation of the situation on the domestic market.

One of the prerequisites for the further development of the egg sector is the creation of a legal framework, which would regulate the system of grading eggs and reporting on their prices. The currently valid regulation is partially harmonized with the CAP in this area, and in order to achieve full harmonization of regulations with the EU legal acquis, it is necessary to establish a transparent system of reporting on egg prices. The implementation of these activities will create conditions for improving the position of Serbian producers on the domestic and international markets. The market standards for poultry meat are also not harmonized with the CAP, which is why the national

legislation needs to be harmonized with the EU rules in this area, especially in the part related to poultry meat classification and price reporting.

The results of the introduction of new measures in poultry production during the Program implementation period are monitored through two indicators: the share of poultry meat exports in total exports and the share of egg exports in total exports. In this sense, at the end of the program implementation period, the share of poultry meat exports is expected to increase by 0.05%, while the share of egg exports in total exports should increase by 0.02% in 2024. In order to realize the stated goals, it is necessary to:

- adopt regulations of market standards for poultry meat and
- adopt regulations of market standards for eggs and laying eggs and chicks of domestic poultry.

The performance indicators for market standards are presented in Table 8.

Table 8 Indicators of results for market standards (Rulebook, 2014)

Indicator	Unit of measure	Base value (2020)	Target value (2024)
Share of export of fresh fruit and vegetables in total export	%	7.0	10.0
Share of poultry meat exports in total exports	%	0.25	0.30
Share of egg export in total export	%	0.08	0.10

Similar to the mentioned Program, the IPARD III program of the Republic of Serbia for the period 2021-2027 (Rulebook, 2023) defined specific goals for different types of production, which specifically in poultry can be divided into the meat and egg production sector, as well as the meat and egg processing and marketing sector.

1. Meat sector:

- Improvement of environmental protection standards, production infrastructure and equipment to achieve sustainability and competitiveness on the EU market.
- Increasing the value of agricultural production by adding value to primary products through the support of higher stages of processing on farms.
- Increasing support to larger specialized farms for investments related to EU biosecurity, animal welfare, management and storage of manure and/or waste and/or standards for waste water storage and management.
- Improvement of the horizontal connection of agricultural producers.

2. Meat processing sector and marketing:

- Improvement of facilities for slaughtering, cutting and processing meat to comply with EU standards.
- Introducing new technologies, improving production processes and improving products, with the aim of better positioning on the domestic and international markets.

- Introduction of food safety and quality systems (GHP – good hygienic practice, GMP – good manufacturing practice, HACCP – hazard analysis and critical control points and ISO – international organization for standardization), for monitoring, control and management of production.
- Improvement of waste and wastewater management, as well as renewable energy sources.
- 3. Egg sector:
 - Improving the competitiveness and productivity of agricultural farms engaged in egg production through investments in the construction of facilities and the purchase of equipment.
 - Achieving EU standards in terms of egg safety and quality, animal welfare and environmental protection, through investments in construction of facilities and procurement of equipment for keeping (breeding) laying hens, storage and management of manure, as well as production of energy from renewable sources on the farm.
- 4. Egg processing sector and marketing:
 - Improvement of new and existing processing capacities to comply with EU standards, as well as increasing competitiveness and productivity.
 - Introduction of new technologies and improvement of production processes and products, with the aim of better positioning on the domestic and international market.
 - Introduction of food safety and quality systems (GHP, GMP, HACCP and ISO).
 - Improvement of waste treatment and management.

CONCLUSION

From all of the above, it follows that the future development of poultry farming in our country and in the world will only be successful if the quality of nutrition and human health are strictly taken into account, keeping in mind the economy of production, the welfare of animals and the preservation of the environment, while respecting the opinions of science and the profession. This requires multidisciplinary cooperation and a comprehensive approach, which can be reduced to the following measures:

1. Better control of the import of eggs and hybrids, with maximum engagement of sanitary and selection services.
 2. More frequent control and guarantee of the quality of poultry feed, as well as the health status and all preventive measures taken in the production of one-day-old chicks intended for fattening or the production of laying eggs for consumption, which avoids not infrequent court cases.
 3. Stricter control of all imported poultry feed components.
 4. Daily monitoring of the most important animal hygiene parameters, as well as more frequent quality control of drinking water on farms.
 5. Greater subsidization in this type of production, as well as pre-agreed prices of final products (meat and eggs).
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6. Establishing a partnership relationship, connection and good cooperation between producers of poultry feed, farmers and representatives of the slaughterhouse industry, who should jointly share the realized profit. This also requires the formation of an association with the aim of joint performance on the market.
7. Construction of slaughterhouses according to all European standards, which would serve a larger number of smaller producers, which is a necessary prerequisite for increasing quality control and exports.
8. Training of a larger number of experts within the already existing services, who would work in the field with the aim of controlling production and solving current problems in poultry farming, as well as educating producers (professional lectures and seminars).
9. The formation of as many family farms as possible, with the use of existing capacities, in order to, in addition to increasing employment and satisfying the domestic market, acquire the conditions for greater export of poultry meat and eggs, of special quality. The aforementioned producers have the option of joining cooperatives to be as visible and competitive as possible through joint cooperation and appearance on the market.
10. Maximum use of domestic components intended for the production of poultry feed, with monitoring of their quality and correctness, proper storage and prevention of mold and mycotoxin development.
11. Special attention should be paid to the structure and quality of the meal, because in this way the quality of the obtained product and the health of people can be significantly affected, while the meal must always have an acceptable price.
12. Establishment of stationary experimental points (especially at faculties and institutes), where experimental research would be carried out, using the latest biotechnological achievements in this field, and whose positive effects could then be applied in practice.
13. In their professional work and career, agronomists and veterinarians should not be competitors, but on the contrary, colleagues with a clearly defined field of work. They must never forget and stop contact and cooperation with the faculties from which they came. Their umbrella institution should always be a support in practical work, provide them with the possibility of additional training, but also reliable laboratory services that they will use with certainty.
14. It is necessary to engage the profession when adopting all legal regulations that regulate this area. At the same time, it is necessary to give significantly more media space to eminent domestic experts, who also have something to say.

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