

Challenges and Opportunities in the Livestock Industry for higher productivity and sustainability: The case of Albania

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[Doi:10.19044/esj.2024.v20n19p70](https://doi.org/10.19044/esj.2024.v20n19p70)

Submitted: 21 May 2024

Accepted: 28 June 2024

Published: 31 July 2024

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Cite As:

Risilia D. & Myslimi G. (2024). *Challenges and Opportunities in the Livestock Industry for higher productivity and sustainability: The case of Albania*. European Scientific Journal, ESJ, 20 (19), 70. <https://doi.org/10.19044/esj.2024.v20n19p70>

Abstract

The livestock sector plays an important role in the economic development of the country. This sector is a source of income and employment for many Albanian families who live mainly in rural areas. A large part of the population in our country deals with livestock. But regardless of all the contributions that livestock makes to the food chain, financial sustainability, and the entire economy, this sector faces many challenges. Based on the literature review, a questionnaire to identify these challenges was constructed. The questionnaire contains questions with answers on the Likert scale, is addressed to livestock farmers in Albania, and serves to identify the main challenges affecting the livestock sector. The questionnaire divided the challenges of the livestock sector into five parts, including animal welfare and livestock production, sustainable practices and environmental sustainability, market challenges, information, communication technologies and livestock marketing challenges, and challenges of innovations in livestock production.

Animal welfare affects the productivity of the livestock sector. The risk of the spread of epidemic diseases and the high costs of vaccination and medications are a concern for Albanian farmers, who often have difficulties ensuring sustainable profits. In recent years, the livestock sector has faced high

input costs. Lack of infrastructure also hinders the efficiency of the livestock sector.

The need for sustainable practices and environmental sustainability demands more attention. While farmers want to adopt sustainable livestock methods, they face difficulties in implementing them. Unpredictable livestock prices complicate financial planning for farmers. In addition, small farms face challenges competing with larger ones. Farmers face difficulties in becoming part of new markets due to a lack of effective marketing channels. The lack of a labor force is the biggest challenge that the livestock sector in Albania is facing.

Innovation often serves to solve many problems in the livestock sector. Farmers use new technologies to increase livestock productivity. But the use of new technologies requires knowledge, which Albanian farmers often don't have. They do not have the proper education to understand and apply these technologies. In conclusion, this paper aims to highlight the various problems faced by the livestock sector. Overcoming these problems by dealing directly with them can increase the productivity of the livestock sector, ensuring a better future for the industry.

Keywords: Livestock sector, challenges, productivity, innovation, market, sustainable

Introduction

The livestock sector is one of the most important sectors in Albania due to its importance in the country's economy. Over the years, the number of farmers working with livestock has been large. The wide range of livestock products produced on farms has often been part of informal markets. Over the years, the presence of Albanian livestock products in the formal and international markets began to increase. Internationalization drew the attention of government authorities to this sector and also increased the need for the modernization of this sector. The Albanian government tightens measures to improve food safety standards to protect the health of consumers inside and outside the country. The need for modernization led to increased investment in this sector. In addition to new technologies, special attention has been paid to increasing the care of livestock in order to increase the quality of livestock products (Lika, 2021). Strategies for improving the health of animals increase their lifespan and increase the quality of livestock products, which affects the health of consumers and sustainable livestock development (Biçoku & Uruçi, 2013).

However, the road to a successful livestock sector is not without challenges. The lack of infrastructure in rural areas hinders the transport of goods (Tomorri et al., 2018). Limited access to international markets, often as

a result of high competition, a lack of regulations, or their complexity, limits the possibility of Albanian farms being recognized internationally (Gjeçi et al., 2018). Epidemic livestock diseases require investment in preventive measures. A labor shortage affects livestock health and effective farm management. High input costs, and price volatility also hinder the development of the livestock sector. Farmers' low incomes reduce their opportunities to invest in improving farm conditions.

For the success of the livestock sector, it is necessary to minimize these challenges. Investment in infrastructure gives farmers new trade opportunities. Improving international trade regulations and encouraging cooperation with international buyers helps create a more equal environment for farmers in Albania. Government subsidies for farmers increase the profits of this sector and encourage young people to engage in animal husbandry (Gallerani et al., 2004). Investments in veterinary training and farmer education programs affect the improvement of animal health. Addressing the challenges and efforts to modernize the livestock sector will make the livestock sector in Albania an important engine of economic growth (Gjeçi et al., 2018).

Purpose

The purpose of this paper is to identify the challenges faced by the livestock sector in Albania through a questionnaire. Such a thing is realized by studying issues such as animal health, livestock production, marketing, invasion, etc. Minimizing these problems would affect the increase in livestock production.

1. To identify the main challenges faced by the livestock sector in Albania
2. To analyze whether Albanian farmers are ready to use new technologies to increase farm productivity
3. To analyze market challenges in the livestock sector, such as price volatility, market entry barriers, and competition.

The main objectives of the paper are:

1. To identify and analyze the key challenges faced by livestock farmers related to animal welfare, livestock production, market challenges, environmental sustainability, and innovation.
2. To examine the willingness and ability of farmers to adapt to new technologies in the livestock industry.
3. To identify the most important challenges related to market challenges such as price instability, high input costs, barriers to entering new markets, competitiveness, etc.

Research questions:

1. What are the main challenges facing livestock farmers in terms of animal health, production efficiency, market dynamics, environmental sustainability, and innovation adoption?
2. What is the level of use of new technologies by livestock farmers, and how ready are they to adopt these technologies?
3. How do market challenges affect the effectiveness of livestock production?
4. What measures can be taken to address the challenges identified in terms of increasing productivity in the livestock sector?

These research questions serve as a guide to exploring various problems in the livestock industry. They aim to identify the challenges faced by livestock farmers, current livestock production practices, the level of use of new technologies and the possibility of farmers using these technologies, the impact of market challenges on farm effectiveness, and possible strategies for addressing these problems.

Literature Review

The livestock sector has an important role in guaranteeing food security and promoting economic growth. It is a source of income for many people around the world. However, the livestock sector faces challenges that threaten its sustainability. One of the challenges this sector faces is related to animal health. The spread of epidemic diseases has been a constant concern for farmers, as it causes significant economic losses and threatens food security. (Perry et al., 2013). Epidemic diseases affect animal health. (Zawojkskam & Siudek, 2018).

Another challenge faced by the livestock sector is related to livestock production limitations. Rising input costs, a lack of water supply, and inadequate infrastructure hinder the effectiveness of the industry (Tambi & Anyah, 2019). Furthermore, a lack of a labor force and qualified employees hampers livestock productivity, especially in developing countries (Mutibvu et al., 2012).

The impact of environmental conditions on livestock production is a growing concern. The livestock sector affects deforestation and water pollution (Kraham, 2017). On the other hand, climate change affects livestock production, water reserves, and animal health (Thornton & Herrero, 2010). According to the authors, sustainable practices are essential to ensuring the long-term sustainability of the livestock sector.

Market challenges affect livestock production. Unstable market prices, limited access to international markets and scale competition particularly affect small farmers, who are in unequal conditions compared to large farmers

(Williams et al., 2020). Information asymmetry, where small producers have little access to market information, further disadvantages them (Oliveira et al., 2006).

Innovation affects the success of the livestock sector. The financial limitations of farmers, the lack of knowledge about the use of new technologies, and the lack of proper infrastructure hinder the progress of the livestock industry (Kebebe, 2014).

Despite the challenges, there are many opportunities to increase the productivity of the livestock sector. Investment in road infrastructure, storage of livestock products, and veterinary services would increase the potential of this sector. Improved logistics can modernize operations and improve market access for farmers (Oosting et al., 2014).

For the success of the livestock sector, government support plays an essential role. Policies such as subsidizing the livestock sector, training programs for farmers, and supporting sustainable practices improve farm profitability, encourage and attract new generations to enter livestock farming, and promote the use of new technologies (Benin et al., 2003).

Improving trade regulations, promoting the cooperation of local farmers with international companies, and promoting the consumption of local products promote the development of the market for livestock products (Reardon et al., 2017).

Innovation is a powerful tool for answering many questions. New innovative animal breeding methods affect the improvement of livestock health and productivity. Advances in the veterinary field can improve the prevention and treatment of livestock diseases. Digital technologies increase farmers' access to data information, helping in effective resource management (Bicoku et al., 2018; Tomorri et al., 2018).

Improving marketing strategies is essential for the sale of livestock products (Negassa et al., 2011). According to the authors initiatives that increase access to market data and promote marketing channels empower smallholder farmers and improve their market competitiveness.

Farmers should pay special attention to the use of sustainable practices in order to mitigate the negative impact of changing climate conditions on livestock production (FAO, 2016). The use of practices that improve livestock health and increase livestock productivity should be the focus of farmers. Climate change impacts livestock production and management (Hahn et al., 1992). Strategies for improving the quality of livestock products, reducing food waste, and exploring alternative sources of food increase the sustainability of the livestock sector and reduce the impact of the livestock sector on climate change (Hoque et al., 2022). Applying proper practices when using organic manure is important, as it reduces greenhouse gas emissions and turns organic manure into a valuable source of fertilizer (Hyland et al., 2016).

Methodology

Based on the literature review, a questionnaire was constructed that was addressed to livestock farmers in Albania. The questionnaire contains questions on the demographic data of the respondents along with Likert scale responses. It was used to collect data and identify key challenges affecting the livestock sector. The questionnaire is divided into several parts. Each part of the questionnaire contains statements related to animal health and livestock production, sustainable practices and environmental sustainability, market challenges, information and communication technologies, livestock marketing challenges, and innovation challenges in livestock production. Farmers express their level of agreement with the given statements, using a rating scale from "strongly disagree" to "slightly agree". After data collection, an analysis was done to identify the main challenges faced by farmers in their daily activities. The results of the questionnaire were interpreted to give a comprehensive overview of the livestock sector in Albania.

A general overview of the livestock sector in Albania

Many Albanian families generate their income from livestock activities. Most of the livestock products that are sold in the market are produced on small and medium farms. Some of these products are sold in informal markets. On the other hand, many quality livestock products produced by large farms compete in international markets.

According to Instat (2022), the number of livestock has declined during the last few years. The number of cattle, containing primarily cows, has declined more than other types of livestock. The decline was 41% from 2015 to 2022. The number of sheep and goats, as well as the number of pigs, have decreased by 27% and 20%, respectively, over the last eight years. The number of Equidae, which generally contain horses, has declined by 28%, while the number of birds has fallen by 20%. The following table illustrates the changes in the number of livestock heads from 2015 to 2022.

Table 1. Number of livestock, 2015-2022(000 heads)

Nr.	Description	2015	2016	2017	2018	2019	2020	2021	2022
I	Cattle	504	492	475	467	416	363	337	298
	Cows	357	355	349	343	316	290	278	261
II	Sheep/Goats	2,850	2,911	2,859	2,781	2,621	2,332	2,256	2,093
III	Pigs	171	181	180	184	184	158	159	137
IV	Equidae	91	94	89	88	87	79	76	65
V	Poultry	8,558	8,326	7,835	8,362	8,179	7,907	7,652	6,848
VI	Beehives	271	303	290	285	288	358	394	479
Total		12,446	12,307	11,727	12,169	11,775	11,196	10,873	10,181

Source: Instat 2022

Livestock farms in Albania are dominated by sheep, goats, and cows. This is because of the weight that cattle have in the production of the country's livestock product.

The decline in the livestock industry has come as a result of the problems faced by this sector. Emigration is one of the main phenomena that has affected the livestock industry. As a result of the increase in emigration, people's interest in working in the livestock sector has decreased. This has led to a decrease in the number of heads and a decrease in the number of farms. Also, a part of farmers, as a result of low incomes, have preferred to transfer from rural areas to urban areas. Subsidization of the livestock sector is not at the appropriate level in relation to the contribution that this sector makes to GDP.

The following table presents the number of heads by prefecture. The largest number of cattle is in the districts of Fier and Korça, with 13% of the total. Fieri is the district in which the largest number of birds are raised. The district with the largest number of sheep and goats is the district of Vlora with 24%, followed by the district of Korça with 16% of the number of heads. Lezha is the county with the largest number of pigs, while the largest number of Equidae grows in Korça.

Table 2. Number of heads by prefectures, 2022 (%)

Nr.	Prefecture	Total	Cattle	Sheep & Goats	Pigs	Poultry	Equidae
1	Berat	7	5	10	1	9	9
2	Dibër	7	9	5	1	4	10
3	Durrës	5	6	2	5	9	3
4	Elbasan	9	9	8	4	12	11
5	Fier	12	13	7	10	25	12
6	Gjirokastër	6	3	13	0	2	6
7	Korçë	14	13	16	6	11	19
8	Kukës	5	9	3	0	1	5
9	Lezhë	8	7	4	43	4	2
10	Shkodër	9	11	5	22	7	6
11	Tiranë	6	8	3	0	9	4
12	Vlorë	13	7	24	7	5	12
Total		100	100	100	100	100	100

Source: Instat 2022

In addition to the decrease in the number of heads, livestock production has also decreased.

Table 3. Livestock productions, 2015-2022 (000 tonnes)

Description	2015	2016	2017	2018	2019	2020	2021	2022
Meat live weight	158	160	161	161	157	150	148	140
Honey (tonnes)	3	4	4	4	4	5	5	5
Wool	3	3	3	3	3	3	3	2
Milk	1,131	1,145	1,156	1,144	1,112	1,052	1,013	970
Eggs (mill/pieces)	830	830	811	828	865	861	899	776

Source: Instat 2022

According to Instat (2022), milk is the most produced livestock product in Albania compared to other livestock products. The production of milk has decreased from 2015 to 2022 by 14.2%. Meanwhile, egg production from 2015 to 2022 has been fluctuating. It has increased in 2018, 2019, and 2021. Honey production from 2015 to 2022 has increased by approximately 66%. Meat and wool production decreased by 11.39% and 33.3%, respectively.

Results of the questionnaire

Table 1 presents the demographic data of 126 livestock farmers who answered the questionnaire. 78.57% of respondents are men, and only 21.43% are women. 16.66% of farmers belong to the 18-34 age group. Most of the farmers belong to the age group of 55-65 years. This indicates that young people in Albania do not like to work in the livestock sector. 41.27% of farmers answered that their income does not reach the value of 50,000 ALL per month. 30.16% of them answered that their monthly income from the livestock sector is between 50,000-100,000 ALL per month. Only 15.07% of the farmers answered that their income was over 150,000 ALL per month. This result shows that the livestock sector in Albania does not have high profits for the majority of farmers. Only a small percentage of the farmers questioned, 11.9%, had university and master's degrees, while 88.1% of them had a high school diploma or college. Such a result shows that, in general, people with higher education in Albania do not prefer to work in the livestock industry.

Table 4: Demographic profiles of the respondents

Demographics	Value	Frequency	Frequency
Gender	Male	99	78.57%
	Female	27	21.43%
Age	18-24	9	7.14%
	25-34	12	9.52%
	35-44	15	11.9%
	45-54	30	23.8%
	55-64	36	28.58%
	65+	24	19.06%
Monthly income	Below 50,000 LEK	52	41.27%
	50,000 - 100,000 LEK	38	30.16%
	100,000 - 150,000 LEK	17	13.5%
	150,000 - 200,000 LEK	10	7.93%
	200,000 LEK or more	9	7.14%
Education Level	High School Diploma	62	49.2%
	College	49	38.9%
	Bachelor's Degree	9	7.14%
	Master's Degree	6	4.76%
	PhD	0	0%

Source: Author calculation

The following table summarizes the results of the questionnaire completed by the farmers. The questionnaire, through different statements, aims to identify the challenges facing the livestock sector. These challenges are divided into several groups. The first group of statements aims to identify challenges related to animal welfare and livestock production. The spread of epidemic diseases is a great risk only for around half of the farmers (49.96%). The rest of the farmers either do not consider the spread of epidemic diseases as a risk or are insensitive to this risk. A significant portion of the farmers (65%) are able to take care of their cattle if they get sick. Only 19.84% of farmers cannot treat their animals themselves in cases of illness. Such a result is related to the fact that most farmers have been working in livestock farming for many years. Almost half (44.84%) of farmers do not have enough income to cover the costs of vaccination and other medicines for animals, while 44.76% of respondents say that their income can cover vaccine and medicine costs. It is worth noting that some of the farmers say that the vaccination costs are not high.

The profits generated from work on livestock are not satisfactory for a large part of the farmers (60.32%). Only 20.64% of farmers are satisfied with the profits generated from the livestock work, and 19.84% of them could not give an accurate assessment of this question. All the farmers think that the costs of livestock products have increased a lot recently. Water supply is a concern for half (50%) of farms in Albania. Infrastructure hinders the development of business on Albanian farms. More than half of the farmers

(54.76%) say that the infrastructure prevents the sale of their products. 42.6% of the farmers are satisfied with the productivity of their livestock, while the rest stated that, due to various factors, the productivity of the livestock is not at the right level. Access to credit is relatively low (33.34%). This is not only due to the fact that financial institutions refuse to give loans to farmers for business expansion, but some Albanian farmers also refuse to receive loans. The lack of a labor force is a challenge that affects all the farmers asked.

Table 5. Challenges of the livestock sector

Animal welfare and livestock production	Strongly Disagree	Disagree	NA/D	Agree	Strongly Agree
The spread of epidemic diseases is a big threat to our farm.	10.32	19.84	24.6	30.16	15.08
When my cattle get sick, I cure them myself.	4.76	15.08	15.16	39.68	25.32
My income can cover the costs of vaccination and other costs for the treatment of cattle.	14.76	30.08	10.4	24.92	19.84
The livestock sector faces challenges in securing sustainable profits.	10.32	10.32	19.84	30.16	30.16
The cost of raising livestock has risen dramatically due to a significant increase in feed prices.	0	0	0	42.06	57.94
The current water supply is insufficient for our livestock needs.	4.76	15.08	24.66	34.92	20.58
Infrastructure damages our business.	4.76	15.08	25.4	34.92	19.84
Our cattle are productive.	7.94	15.87	34.13	26.98	15.08
I can get loans easily to expand my business.	16.67	20.63	29.37	25.4	7.94
It is difficult to find qualified employees.				22.22	77.78
Sustainable practices and environmental sustainability	Strongly Disagree	Disagree	NA/D	Agree	Strongly Agree
I am concerned about the impact of climate change on livestock production.	11.11	19.05	33.33	34.92	1.59
I'm interested in using practices that improve animal health and increase livestock production.	13.49	16.67	18.25	31.75	19.84
Consumer demand for quality livestock products has increased.	8.73	15.87	17.3	27.78	30.32
Market challenges	Strongly Disagree	Disagree	NA/D	Agree	Strongly Agree
Changes in input prices cause difficulties in financial forecasts.	7.14	22.98	27.78	25.4	16.67

I sell my livestock products at good value.	47.62	37.3	0	7.94	7.14
I find it difficult to enter new markets to sell livestock products.	3.97	15.87	23.81	41.27	15.08
Big farms control the livestock market.	7.14	18.25	23.02	34.13	18.25
Information and communication technologies and livestock marketing challenges	Strongly Disagree	Disagree	NA/D	Agree	Strongly Agree
I can easily find information on the market prices of livestock products.	41.27	29.37	7.14	14.29	8.73
I find it difficult to use different marketing channels to sell livestock products.	6.35	3.97	10.32	47.62	31.75
Innovation challenges in livestock production	Strongly Disagree	Disagree	NA/D	Agree	Strongly Agree
I am interested in using new technologies to improve livestock production.	8.73	19.05	23.81	26.98	21.43
I do not know how to use new technologies to increase the effectiveness of the farm.	7.94	19.05	13.49	35.71	23.81

Source: Author calculation

Considering sustainable practices and environmental sustainability, change in climatic conditions is perceived as an important challenge only by 36.51% of farmers. Using practices that improve animal welfare and increase livestock production is a priority for over half (51.59%) of the respondents. This fact is also influenced by the increase in consumer demand for quality livestock products.

Most of the farmers asked (84.92%) are not satisfied with the price at which they sell livestock products. More than half of them (52.38%) find it difficult to enter new markets, and a significant part think that large farms dominate the market. Providing information on market prices and the use of different marketing channels for livestock products continues to be a challenge for Albanian farmers.

A significant part of farmers (48.41%) are interested in using new technologies in order to expand their businesses, although due to different factors such as age, education, etc., they have difficulty using new technologies.

Conclusions

The livestock sector in Albania faces many challenges. The spread of epidemic diseases is a constant threat to farmers. A large number of farmers,

due to their long experience in the livestock sector, take care of the health of their animals. Some of them say that their budget can afford the purchase of vaccines and other medications for the treatment of animals. This is because the cost of cattle vaccination in Albania is not high. For another part of the farmers, the cost of vaccinations and other animal medications remains a concern. The increase in the profits of the livestock sector is hindered by the increase in input costs and the lack of proper infrastructure for the sale of livestock products. Some farms in Albania face difficulties with water supply. A small number of farmers express dissatisfaction with livestock productivity production, while the majority of them think that they can do more to increase the productivity of the farms, but such efforts require additional sources of financing. The lack of a labor force is the biggest challenge that the livestock sector in Albania is facing. Climate change is another challenge for the livestock sector. In recent years, the interest of Albanian farmers has increased in the use of practices that improve the health of animals and increase the quality of livestock products. Market challenges represent how price volatility affects farm financial planning. Entering new markets and international markets, as well as market dominance by large farmers, are challenges for small farmers. Also, limited access to market information and difficulty in using effective marketing channels hinder the success of smallholder farmers in particular.

Despite the challenges, the livestock sector in Albania has great opportunities for development. The improvement of the infrastructure gives farmers the opportunity to become part of new markets. Government support through subsidies, farmer training programs, and the promotion of sustainable practices increases the profitability of the livestock sector and encourages younger generations to work in this sector. In this way, the problem of the lack of a labor force will be mitigated. Improving trade regulations and encouraging cooperation with international companies give Albanian farmers the opportunity to become part of the global livestock market. Investing in new technologies improves the efficiency of the livestock sector. Initiatives to improve access to market data and to connect farmers with consumers can increase marketing efficiency.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

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