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THE DYNAMICS OF ALBANIA'S MEAT SECTOR: TRENDS AND IMPLICATIONS

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ABSTRACT

Albania's agricultural sector is transitioning from subsistence-based farming to a vibrant commercial industry, significantly contributing 21.3% to the nation's GDP. Within this evolving landscape, animal husbandry, especially the meat industry, has emerged as a cornerstone for both farm revenue and market supply. Nonetheless, the sector faces numerous challenges. This paper offers an in-depth examination of Albania's meat production industry through a rigorous methodological framework involving a blend of primary and secondary data analysis. The results emphasize the critical need for significant enhancements across various facets of primary production. Priorities should include improved feed and forage practices, the introduction of specialized meat breeds for cattle and small ruminants, and the adoption of advanced animal husbandry methods. Additionally, it is essential to address meat hygiene standards, animal health controls, meat safety, quality controls, and the efficiency of slaughtering systems. Furthermore, the country currently depends on net imports for several agricultural goods, including meat, as it strives to comply with EU standards. This dependence underscores the urgent need to enhance both competitiveness and food quality within the meat sector. In summary, this research sheds light on both the challenges and potential within Albania's meat production sector. However, readers should consider the study's limitations to fully grasp the potential constraints and biases, along with the evolving nature of the industry beyond the scope of this analysis.

Keywords: Meat; Production; Challenges; Trends.

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1. INTRODUCTION

Agriculture plays a crucial role in the Albanian economy, accounting for about 33% of total employment [17, 18]. and serving as a primary income source for rural households. In 2022, agricultural sector contributed 21,3% of the GDP [5]. This sector plays a crucial role in alleviating poverty, especially in rural areas where approximately 36%[1] of the population resides. Additionally, it contributes significantly to improving the overall quality of life for individuals and communities.

As of September 18, 2023, Albania's population stands at 2,402,113[2]. The country covers a total land area of 2,875,000 hectares, with 24% being agricultural land, 36% forestry, 15% pastures and meadows, and 25% classified as "others".

Albania has made significant strides from being one of the Europe's poorest nations to becoming an upper-middle-income country [21]. Key reforms, particularly in areas like the rule of law monitored by the European Union for EU enlargement and alignment with the acquis communautaire, have been pursued [4]. However, economic progress has been hindered by challenges stemming from the 2019 earthquake and the 2020 pandemic.

Structural, institutional, and legal changes are anticipated to bring long-term benefits. Since 2014, Albania's economy has shown steadily improved, with economic growth reached 3,5% and 3,3% in 2022 and 2023, up from 1,8 and 2,8% in 2014 and 2015, respectively [19, 21][3]. Average annual inflation decreased from 1,9% in 2015 to 1,3% in 2016, but rose to 6,7% in 2022 [20].

Remittances, a significant driver of economic growth, dropped from 12-15% of GDP pre-2008 financial crisis to 5,1% in 2020, with a slight increase to 5,3% in 2023, mainly from Albanians residing in Greece and Italy [5, 6]. In 2022, GDP per capita in Albania was only 32% of the EU 27 PPS[4], increasing to 34% in 2023 [5, 6]. Public debt stood at 64,6% in 2022, down from 84,06% in 2016 [5, 22].

[1] The data was obtained from the CEIC Data website, specifically from the section on population and urbanization statistics for Albania, available at: https://www.ceicdata.com/en/albania/population-and-urbanization-statistics/al-rural-population--of-total-population

[2] INSTAT- CENS 2023

[3] The comparison throughout much of the material is made with the year 2014 because the IPARD-II program was established for the period from 2014 to 2018, and it was also the year when a new government program was initiated.

[4] Purchasing Power Standards

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Livestock farming is essential for income generation in rural communities, significantly contributing to the economy. In 2019, animal production represented 45% of the agricultural production value [15, 16]. The country has a strong tradition of meat production, supported by favourable natural resources that facilitate the raising of cattle and small ruminants. In addition to providing a vital source of income, livestock also offers draught power and serves as a direct source of food and fertilizer.

Mixed crop-and-livestock farms tend to be labour-intensive, often managed by one or two family members, highlighting the importance of family labour in these operations. In contrast, larger farms typically hire additional workers to meet their operational needs.

Cattle farming is the most prevalent form of animal husbandry, followed by sheep, goats, poultry, pigs, and beekeeping. Cattle production thrives in the plains, while small ruminants are more commonly raised in hilly and mountainous areas. The region boasts extensive pastures and hayfields, with livestock breeds well-suited to local conditions. Poultry farming is primarily concentrated in the western lowlands, whereas pig farming is predominantly found in the northern regions, which have a significant Catholic population.

Total meat production amounts to 135 thousand tons, with 69.2% derived from cattle and small ruminants [9]. The meat sector in Albania faces challenges such as outdated practices, insufficient infrastructure, and inconsistent standards, impacting competitiveness and meeting EU standards. There is a need to enhance farmers' knowledge by improving the public extension service, motivating advisors, and providing financial support to align with EU requirements.

There is an ongoing process of sector consolidation and polarization. Larger, modernized meat farms are collaborating with the upgraded meat industry, making investments to enhance size, quality ad product range, while smaller farms are scaling down operations and selling to local markets or butchers.

A concerning trend is the decline of eco-pastoral systems in inner and mountain areas, affecting traditional small ruminant breeding and related supply chains. Small sheep farms (with 50 ewes or less) have decreased by 35% in the last decade, impacting the entire production chain [1]. Conversely, large goat farms are adopting modern practices tailored to hilly and lowlands areas.

Despite the importance of agriculture in Albania, the country heavily relies on food imports. In 2023, food imports increased by 10% compared to 2022, reaching levels not seen in the past two decades [1, 7]. Specifically, Albania imported live animals valued at $43 million and meat and

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edible offal worth $65 million (Trading Economics)[5]. Factors such as high production costs and a declining livestock population—halved over the last 20 years—have discouraged local farmers [8]. This decline has contributed to reduced cultivation of certain crops as rural depopulation continues, while tourism drives increased demand for food.

In 2022, the average Albanian spent approximately €385 on meat, a 17% rise from 2021, reflecting high demand despite rising prices due to a dwindling livestock population. To combat the decreasing domestic meat production, Albania is relying more on imports, with significant meat imports primarily from the United States (poultry) and Brazil (beef and poultry). Additionally, the country imports all soy-related products for animal feed, as soybeans are not produced domestically, while it does produce maize mainly for this purpose. In 2020, Albania imported a total of 96,000 tons of animal feed worth $45 million [14]. Financial assistance for farmers is crucial for promoting sustainable development in the agricultural sector.

Challenges in Albanian agriculture include underdeveloped irrigation systems, inadequate infrastructure, limited market access, low technological levels, weak farmer organizations, and constrained credit access [1]. As Albania moves closer to the EU, efforts are underway to enhance competitiveness and food standards for better import/export relations in the agriculture and food sectors.

This research assesses Albania's meat industry, examining its current status, challenges, and factors influencing meat production and distribution efficiency. Suggestions are provided to improve the sector's performance and address existing issues.

2. MATERIALS AND METHODS

The meat sector analysis encompasses a blend of qualitative and quantitative approaches, drawing on primary and secondary data sources.

Primary Data Collection:

Semi-Structured In-Depth Interviews

- **Interviews with Value Chain Operators:** These interviews engaged commercial and semi-commercial farmers, as well as various types of processors.
- **Interviews with Livestock and Extension Service Experts:** Experts from both public and private sectors, alongside with key operators in each value chain stage, participated in these

[5] Trading Economics (https://tradingeconomics.com/albania/imports-by-category)

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interviews. Thoroughly crafted interview guidelines were meticulously tested and refined prior to implementation.

Secondary Data Sources:

A considerable amount of secondary data was gathered from various sources, including the Ministry of Agriculture and Rural Development of Albania, INSTAT, desk studies, and comprehensive assessments of meat farming operations. Several field visits were executed to pinpoint sectorial concerns and obtain a holistic grasp of the sector's setup and performance. Stakeholder perspectives on policy interventions were also solicited within these focus group discussions. Additionally, prior studies and pertinent reports underwent meticulous review. Notwithstanding, a key drawback surfaced from the dearth of recent statistical updates for specific indicators, with certain datasets extending only up to 2018 and 2019.

Data Availability and Quality Concerns:

Challenges in secondary data availability and precision materialized, pinpointing the following primary issues:

- **Structural Statistics**: Scarcity of farm-level data pertaining to structures and processing capabilities, compounded by a dearth of market insights.
- **Farm-Level Data**: This critical dataset remained absent in Albania, further compounded by the non-implementation of the Farm Data Accountancy Network (FADN).

Limitations in Meat Production Data[6]

Prominent limitations within meat production data stemmed from:

- Fluctuating yields metrics,
- Intrapersonal meat consumption practices

Data inconsistencies stemmed from the prevalent informality within the Albanian economy, where industries occasionally refrain from disclosing output to circumvent tax obligations. Furthermore, deficiencies within the agricultural statistical system exacerbated these challenges.

[6] Limitation in meat production data is also linked to highly variable slaughter average live weight (depending on the type of product, and market segments for which it is produced, breed etc.), and to the level of self-consumption.

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3. RESULTS AND DISCUSSIONS

In Albania, the livestock sector underwent complete privatization, notably beginning this process even before land privatization and successfully completing it in 1993. In the livestock sector, small production units predominate, especially for cattle, pig, sheep, goat and horse keeping. Poultry production on the other hand is characterised by large-scale production units (for poultry meat and eggs).

The Albanian government and the Ministry of Agriculture and Rural Development (MARD)[7] are strongly committed to supporting primary production. One of their key objectives is to enhance the competitiveness of local products, with the ultimate aim of reducing imports. Although, meat production is important of Albania's livestock industry farmers are not getting any priority by the government. Several fundamental factors are closely linked with meat production, including:

- The Albanians' tradition, which have historically developed livestock.
- Need for livestock products.
- The ongoing demand for meat origin products.
- Meat's crucial role in enhancing protein-based diets.
- The income generated from fattening animals' sales.

3.1 Meat farms

3.1.1 Livestock Populations and Trends Over Time

The inventory of cattle, which experienced growth from 1991 to 1996 and peaked at 806 thousand, has been on a decline since 1997, falling to 263 thousand by 2023. The population of sheep and goats has not exhibited a consistent trend. After an increase between 1991 and 1996, numbers plummeted in 1997—primarily due to financial pyramid schemes—only to rise again from 1998 to 2000. Stability was maintained until 2014, after which a decrease similar to other livestock categories ensued.

The pig population saw a marked decline from 1990 to 1999, but began to recover post-2000, reaching 184 thousand pigs and 14 thousand sows by 2019. However, a significant drop followed, reducing numbers to 115 thousand in 2023, equivalent to levels seen two decades prior. A

[7] Ministry of Agriculture full name was Ministry of Agriculture and Food (MoAF) for the period 1992-2005; Ministry of Agriculture, Food and Consumer Protection (MAFCP) during 2005 and 2013; Ministry of Agriculture, Rural Development and Water Administration (MARDWA) during 2013-2017; and as of 2017, following institutional changes, it is named Ministry of Agriculture and Rural Development (MARD).

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contributing factor to this decline is the low pricing of imported live animals and carcasses, notably from Greece and the Netherlands.

Poultry numbers initially fell by 50% from 1990 to 1992[8], but subsequently grew for around 20 years (1993-2014) as numerous egg and broiler production facilities emerged during the privatization phase and with new entrepreneurial ventures. However, starting in 2015, poultry numbers began to decline again, a trend linked to competition from imported broiler meat and diseases impacting the national poultry population.

When comparing 2023 to 2014, there were notable reductions in livestock numbers: cattle decreased by 47.4%, sheep by 36.4%, goats by 29.2%, pigs by 33.2%, and poultry by 25.9%.

Table 1: Number of livestock 1990-2023 (000 heads)

Description	Years										
	1990	**1992**	**1996**	**1997**	**2000**	**2005**	**2010**	**2014**	**2019**	**2021**	**2023**
Cattle	633	616	806	771	728	655	493	500	416	337	263
Sheep	1,646	1,796	1,982	1,372	1,939	1,761	1,806	1,896	1,758	1,481	1,206
Goats	1,143	1,234	1,251	840	1,104	941	775	904	863	775	640
Pigs	220	108	98	97	103	114	164	172	184	159	115
of which sows	*22*	*11*	*10*	*10*	*12*	*13*	*13*	*11*	*14*	*12*	*11*
Poultry	5,259	2,539	4,108	4,566	5,291	6,432	8,437	9,493	8,179	7,652	7,031

Source: Ministry of Agriculture and Food (1993, 2004); INSTAT (1991, 2001, 2006, 2011, 2015, 2020, 2022, 2024)

Current market dynamics are likely to perpetuate these trends, as farmers are grappling with rising input and feed costs, elevated land cultivation expenses, and often, low meat prices, further pressured by the availability of inexpensive frozen meat and live pigs imports.

3.1.2. Insights into Meat Production in Albania[9]

The Albanian meat production sector has undergone significant changes since the land privatization initiative in 1991, which resulted in a landscape of small farms with limited plot sizes.

[8] The populations of poultry and pigs experienced a dramatic decline during 1991-1992, primarily due to a shortage of imported protein feed and the privatization of state-owned industrial complexes that had previously managed these livestock sectors.

[9] According to the "Milk Sector Study Report," which offers targeted sector analyses to support the development of the IPARD III program and the Strategy for Agriculture, Rural Development, and Fisheries for 2021–2027 (Project number: 2017.2192.7-001.00), the author served as the primary researcher for this study. Furthermore, the author conducted additional research and interviews between 2020 and 2024.

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Official statistics from INSTAT reported a total of 355,436 farms in Albania in 2013, with 305,839 dedicated to livestock farming; by 2019, this number had declined slightly to 351,600 [1]. Despite a 21% increase in the average farm size over the past decade—from 1.04 hectares in 2002 to 1.26 hectares in 2020—these sizes remain notably small, with an average plot size of merely 0.26 hectares [2].

Bovine Meat Production: Beef production is closely linked with dairy farming, as many farmers engage in both milk and meat production. The average live weight at slaughter for cattle in 2023 was reported at 224 kg (Table 4), significantly lower than the EU average of 520 kg[10] (which varies from 200 to 800 kg, depending on breed and intended product)[11]. Despite this low productivity, beef production is currently deemed more profitable than dairy. Challenges such as extensive breeding systems, limited capital investment, fragmented production bases, and low prices for small-scale producers hinder the competitiveness of the sector. Consequently, many dairy producers have shifted focus toward beef production, taking advantage of surplus milk to feed calves and transitioning to a model where they purchase calves from larger farms for finishing.

Small Ruminants Meat Production: The productivity assessment of small ruminants such as sheep and goats compared to EU standards poses challenges due to differing consumption patterns and breed selection. Farmers managing fewer than 100-150 milking animals are increasingly shifting towards meat production, as income from lamb and goat kid sales often surpasses milk revenue, particularly for all but the largest farms. The decline of transhumance practices and the difficulties in finding young shepherds have led to a greater emphasis on meat production among traditional small ruminant breeders. Additionally, demand for lamb and goat kid meat peaks in the early months of the year, further influencing this shift.

Pork and Poultry Production: Albanian pig farming yields average live weights at slaughter that are 25-30% lower than the EU average. The sector primarily focuses on the fresh meat market, with most processed pork being imported. In contrast, poultry production predominantly features

[10] FAOSTAT (2019)

[11] The lightest category is “white meat veal”, which is made with calves fed only with milk, an average slaughter live weight of 200 kg/head, used for a small market niche, to the most common “beef” 14-20 months male old and with an average slaughter weight of 400-800 kg; also, increasingly popular is “Scottone” category, a female 12-16 months old with an average slaughter live weight of 350 to 500 kg. "Scottone" refers to a specific type of beef that comes from cattle that have been raised in Italy and are typically known for their high-quality meat. The term is often associated with certain breeds of cattle, particularly those that are allowed to graze freely in pastures, contributing to the rich flavour and tenderness of the meat. "Scottone" can also be a designation for cattle that are bred for specific purposes, such as premium meat production, which often involves careful management of their diet and living conditions to ensure optimal quality.

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chicken, and broiler farms follow internationally standardized practices, producing birds that weigh between 1.5 and 2.0.

From 1990 to 2014, beef and small ruminant meat production experienced growth, while pork and poultry production saw declines during the 1990-1992 period. Following that, pork production increased until 2014, while poultry production continued to rise until 2023.

Over the past decade (2014-2023), several categories of meat production have experienced notable declines: beef output decreased by 22.6%, sheep meat production fell by 14.3%, and pig meat production saw a significant drop of 33.3%. Conversely, poultry meat production witnessed a substantial increase of 35.3%, while goat meat production remained stable throughout the same period (Table 2).

Table 2: Statistical Overview of Meat Production Trends (1990-2023) (000 tons)

	Years										
Description	**1990**	**1992**	**1996**	**1997**	**2000**	**2005**	**2010**	**2014**	**2019**	**2021**	**2023**
Bovine meat	40	42	59	59	63	68	68	71	66	60	55
Sheep meat	17	20	21	19	22	28	31	35	35	34	30
Goat meat	8	10	12	12	13	13	13	15	19	16	15
Pig meat	18	16	10	10	10	15	16	18	17	16	12
Poultry meat	9	3	4	4	4	9	17	17	20	22	23
Total	**92**	**91**	**106**	**104**	**112**	**133**	**145**	**156**	**157**	**148**	**135**

Source: MARD and INSTAT (1992-2024)

These trends indicate critical shifts within the Albanian meat sector, reflecting changing consumer preferences, market dynamics, and the overall economic landscape. The decline in traditional livestock production may raise concerns regarding food security and domestic agricultural sustainability, suggesting the need for strategic interventions to enhance productivity and competitiveness in the sector.

Geographically, the Fier region plays a pivotal role, being the largest producer of meat and generating 20.6% of the total output. It, along with Vlorë, Elbasan, and Korçë, contributes to 54.4% of Albania's overall meat production. These regions also excel in cattle meat production, with a combined contribution of 50.8%. Vlorë is especially important for small ruminant meat production, responsible for 28.2% on its own. The regions of Lezhë and Shkodër are leaders in pig meat production (54.1%), while Fier also boasts the highest levels of poultry meat production, accounting for 42.7%[12].

[12] The data was obtained from INSTAT Statistikat e Blegtorise/Livestock Statistics, 2023 (published in June 2024) .

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Table 3: Meat Production by Species and Region (kg)

Region	Meat (kg)					
	Cattle	Sheep	Goats	Pig	Poultry	Total
Berat	3.263	2.334	1.414	172	1.733	8.916
Dibër	5.333	1.462	652	17	527	7.990
Durrës	1.971	624	463	97	3.540	6.695
Elbasan	6.229	2.761	1.877	377	1.624	12.868
Fier	9.704	3.773	966	3.775	9.702	27.921
Gjirokastër	1.466	2.798	1.741	83	73	6.162
Korçë	7.106	4.049	1.682	152	519	13.508
Kukës	3.650	744	293	40	99	4.826
Lezhë	2.712	499	899	4.550	816	9.476
Shkodër	3.480	1.200	943	2.050	696	8.369
Tiranë	5.204	919	561	48	2.653	9.385
Vlorë	5.041	9.213	3.573	833	707	19.367
Total	**55.158**	**30.377**	**15.063**	**12.196**	**22.689**	**135.483**

Source: INSTAT (2024)

The average live weight of cattle in 2023 was approximately 224 kg, with higher weights in the Fier region, averaging 300 kg—33.9% above the national average. Several factors contribute to the low slaughter live weight of cattle, including inadequate nutrition, lack of purebred stock, and insufficient modern farming practices[13]. In addition to these issues, consumers prefer beef from cattle weighing less than 300 kg. The average slaughter live weights for sheep and goats stand at approximately 28.0 kg and 24.0 kg, respectively.

Table 4: Overview of Slaughter Live Weights Kg (2010-2023)

Description	Years			
	2010	2014	2019	2023
Bovine	175.40	195.80	201.70	224.0
Sheep	23.90	26.60	26.70	28.0
Goat	21.80	23.50	24.00	24.0
Pig	78.60	80.03	80.20	80.30
Poultry	1.9	2.0	2.0	1.8

Source: MARD and INSTAT (2011-2024)

https://www.instat.gov.al/al/temat/bujq%C3%ABsia-dhe-peshkimi/blegtoria/#tab2

[13] Gjeçi, G., Shytaj, F., Biçoku,Y. (2018). Livestock Sector in Albania: Trends and Challenges.

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The average slaughter live weight of pigs in Albania is 80.3 kg, which is over 30% lower than the EU average of 110 to 120 kg, with a carcass weight averaging 87.1 kg[14]. However, this figure reflects a 16% increase compared to the 2007-2013 period when the average was 68.8 kg. Regions like Kukës, Durrës, and Elbasan report lower weights—37.7% and 20.3% below the national average—while Vlorë boasts the highest live weight, exceeding the national average by 45.7% (Table 4).

In broiler production, birds typically weigh between 1.3 kg and 1.6 kg after 35 to 40 days. There is a rising demand for segmented supply chains, leading to the creation of production lines for light, medium, and heavy broilers. However, many Albanian farmers struggle to produce heavier broilers, limiting their market potential. Lezhë stands out with an average weight of 3.0 kg for broilers, which is 63.9% above the national average, while Gjirokastër, Shkodër, and Vlorë fall 45.4% below this average due to varying consumer preferences.

Many broiler farm owners suggest that extending the growth period of broilers by just one week could improve both profitability and production. While this extension would necessitate an additional 1 kg of feed per bird, it could result in an extra 0.5 kg of meat, potentially increasing net profits by 15%[15].

Table 5: Live Weight (Kg) of Animals at the Time of Slaughter in 2023 (by Regions)

Region	Live weight, kg				
	Cattle	Sheep	Goats	Pig	Poultry
Berat	294	27	23	71	2
Dibër	249	28	24	73	2
Durrës	206	29	28	98	2
Elbasan	228	30	26	65	2
Fier	300	30	28	84	2
Gjirokastër	172	18	20	64	1
Korçë	213	29	26	100	2
Kukës	210	29	25	50	2
Lezhë	159	25	23	84	3
Shkodër	123	28	22	83	1
Tiranë	250	27	23	76	2

[14] Pig farming in the European Union: considerable variations from one Member State to another. https://ec.europa.eu/eurostat/statistics-explained/pdfscache/3688.pdf

[15] Based on the interview conducted with the owner of ARNA Broiler Farm, Korçe on December 2022.

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Vlorë	283	31	25	117	1
Total	**224**	**28**	**24**	**80.3**	**1.8**

Source: INSTAT 2024

Lastly, the quality and availability of feed and fodder remain critical for the meat production sector. Insufficient investment in pastureland alongside rural population decline has compounded the challenges, highlighting the need for improved pasture management and productivity in feed crops to meet growing demands.

3.1.3 Farm Count and Size Distribution Analysis[16]

Bovine farming: As of 2018, there were 187,930 farms raising cattle, with the majority classified as very small operations. On average, each farm comprises 2.48 cattle, and 65.5% of these farms maintain just 1 or 2 animals. In addition to dairy production, these farms may also fatten one or more calves, some of which are sourced from larger dairy operations. It is important to note that many livestock farms are not specialized and often raise multiple species of animals.

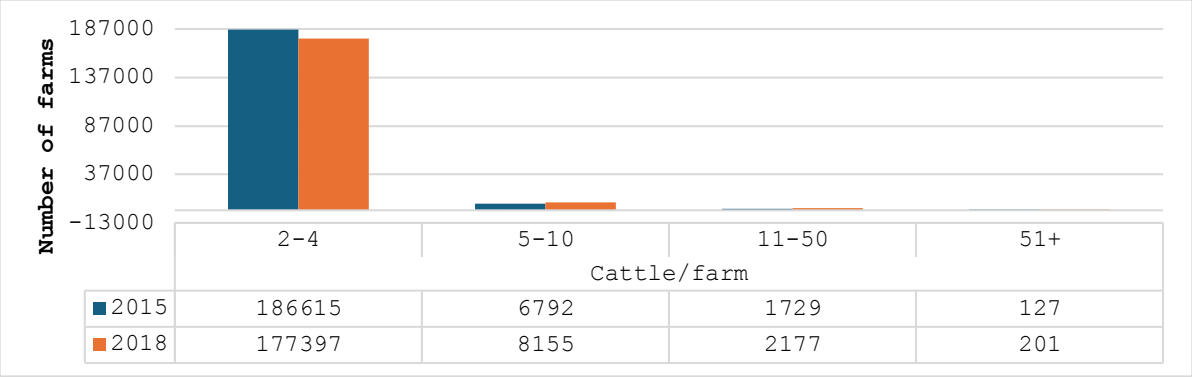

Figure 1: Cattle-Breeding Farms in 2015 and 2018 ***(Source: Elaboration of the author on MARD unpublished data of 2015 and 2019)***

This fragmented structure of cattle production, characterized by low-productivity micro-farms, along with the growing divide between commercial and subsistence farming, presents challenges in formulating effective policy measures for enhancing primary production and developing farm strategies.

[16] The data used are retrieved from a MARD (2019) Unpublished report.

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Small Ruminants Farming[17]*:* In 2018, there were 36,555 farms engaged in sheep farming. A significant number of these sheep farms also rear goats. The national average size of a sheep flock was 51.0 sheep, with farms housing fewer than 50 sheep being quite prevalent, comprising 78.9% of the total. The goat farming sector consisted of 24,244 farms in 2018, with an average herd size of 37.4 goats. Similar to sheep, farms with fewer than 50 goats are quite common, accounting for about 84% of the total goat population in the country.

The figure below illustrates the comparison of the number of small ruminants' farms in 2015 and 2018.

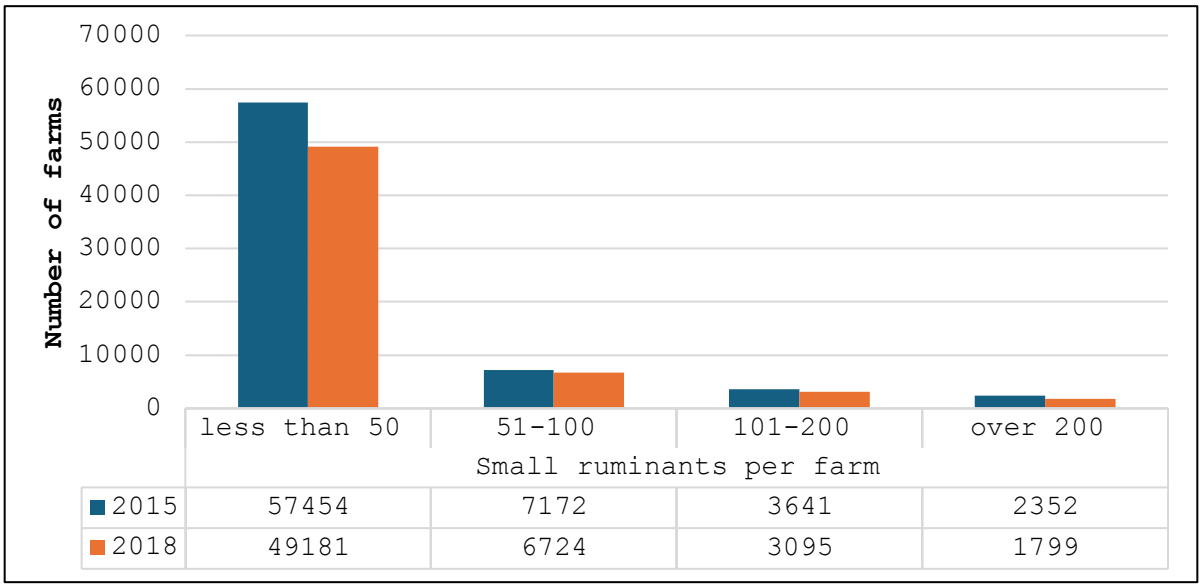

Figure 2: Small ruminants farms by size in 2015 and 2018 (*Source: Elaboration of the author on MARD unpublished data of 2015 and 2019)*

Pig Farming: In 2018, there were 6,136 pig farms, many of which also included sows, as relatively few farms focus solely on fattening piglets. The average size of these farms was 19.9 pigs and 1.92 sows, respectively. The majority of pig farms (92.4%) house fewer than 5 sows.

It is important to note that during the era of planned economy, the largest pig farms were located between Fier and Vlora. Following the collapse of this system, these farms were disbanded, leading to a decline in pig farming activity in that region. Currently, small farms in the areas of Lezhë and

[17] Very few farms raise small ruminants solely for meat and do not milk sheep and goats. Most farmers primarily milk sheep and goats, while they often raise the majority of lambs and kids to sell for meat.

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Shkodër continue to dominate the small pig farming sector. Larger pig farms have only been re-established in southwestern Albania over the past decade.

Figure below illustrates the comparison of the number of sow farms between 2015 and 2018.

Poultry Farming: In 2018, there were 35,688 broiler farms, with an average of 139 broilers per farm. Most broiler farms are small, with 99.8% having fewer than 1,000 birds. Nevertheless, the majority of broiler production comes from the 24 largest broiler farms.

Turkey Farming: In 2018, the number of turkey farms reached 33,933, with an average of 21.6 turkeys per operation. Farms with fewer than 10 turkeys made up 57.9% of the total, indicating a trend towards smaller-scale production.

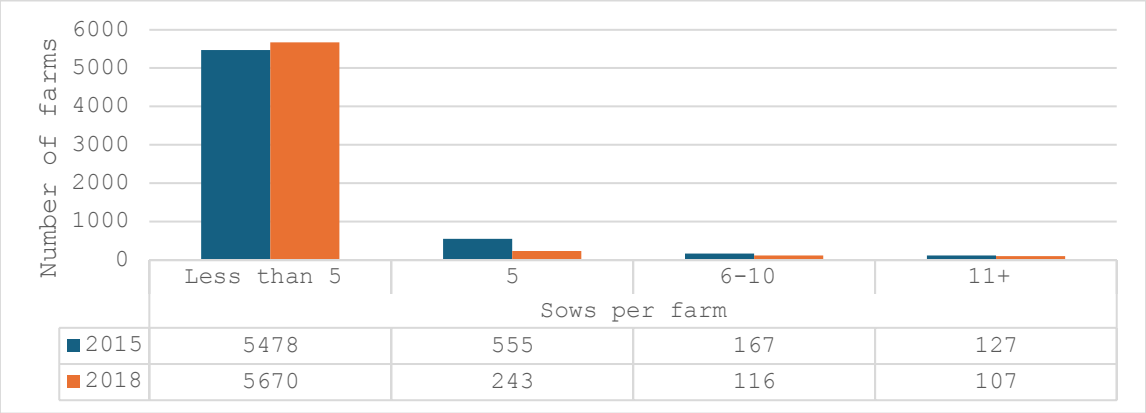

Figure 3: Pig farms by the size of sows in 2015 and 2018 ***(Source: Elaboration of the author on MARD unpublished data of 2015 and 2019)***

3.1.4 Breeding Practices and Predominant Breeds[18]

Cattle Breeding: The cattle population consists of purebred animals and crossbreeds, including Holstein (31%), Jersey (35%), and Black & White (14%). Together, these breeds account for approximately three-quarters of the nation's cattle population. The number of Holstein cows continues to rise, as farmers transition from breeding Black & White cows to the Holstein breed. A significant proportion of cows (63%) in lowland areas undergo artificial insemination.

Holstein, Jersey, and Black & White breeds are renowned for their dairy production. However, their calves exhibit lower daily weight gains compared to those of dual-purpose breeds such as Simmental, Brown Swiss, Norwegian Red (NRF), or Tarentaise. This factor contributes to the relatively low average slaughter weight of cattle meat in the country.

[18] The data used are retrieved from a MARD (2019) Unpublished report.

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Small Ruminants Breeding: Sheep breeding has a long-standing tradition in Albania. Local sheep breeds make up 33% of the total sheep population and are valued for their dual-purpose use in milk and meat production. These breeds are exceptionally well-adapted to the local environment and the challenging breeding conditions. The most significant local breeds include Recka, Ruda, and Bardhoka.

The remaining 67% of the sheep population comprises primarily imported breeds, which are mainly specialized for milk production, such as Awassi and Chios. Additionally, breeds such as Ile de France, which are specialized in meat production, and crossbreeds of Merino, renowned for their wool production, are also present.

Approximately 89% of *goats* in Albania consist of native breeds or ecotypes, while the remaining 11% are crossbreeds with the Alpine and Saanen breeds. Notably, local goat breeds are the only species that have largely avoided widespread crossbreeding.

Natural selection has favoured the development of balanced genotypes, allowing these goats to thrive in their respective environments. These breeds are typically named after the geographical regions where they are raised, such as Hasi, Mati, Capore of Dragobia, Capore of Mokrra, Dukati, and Liqenas. Additionally, the Muzhake breed is found in the southern part of the country.

Several local ecotypes of sheep and goat are classified as "at risk" or "potentially at risk" for conservation status. Unfortunately, there are currently no active conservation programs in place. Farmers often use empirical information and specific traits to select rams and bucks. To prevent inbreeding, they exchange rams and bucks with neighboring farmers every two years. Natural mating is common for sheep and goats bred in remote pastures, far from residential areas or markets.

Native sheep and goat ecotypes are well-adapted to the grazing environment, enabling them to produce more milk and meat at a lower cost. Introducing specialized and more productive breeds would require significant changes in feeding patterns and animal housing.

Investments aimed at improving the genetic potential of sheep and goats, primarily through the importation of rams and bucks, often fail to meet productivity expectations because the feeding patterns are not adapted to the needs of these animals.

The average live weight of ewes ranges from 30 to 55 kg, while rams weigh between 45 and 80 kg. For goats, the average weight ranges from 35 to 55 kg for females and 40 to 80 kg for males[19].

[19] UNDP (2019). Mapping the Genetic Resources of Autochthonous Farm Animals in Albania.

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Pig Breeding: In large pig farms, the predominant breeds used are imported ones, such as Large White for sows, and Landrace, Duroc, and Pietrain for boars. Additionally, sows from the company Topigs, imported from Greece, have proven to be highly effective for both large and medium-sized pig farms due to their outstanding performance in breeding and piglet growth.

These farms have invested heavily in key areas like shelter, environmental control, and feeding technology, which are essential for successful swine production. Ensuring proper feeding practices is critical, and these farms follow specific technological guidelines to provide optimal nutrition for the pigs.

Poultry Breeding: For poultry meat production, farmers rely exclusively on hybrid breeds such as Ross, Cobb, and Coloured/Backyard chickens. These breeds are favoured for their rapid growth rates, making them ideal for efficient meat production.

3.1.5 Animal feeding and dynamic of forages area and production[20]

In general, small farms primarily rely on forage and grasslands/meadows for feeding cattle and small ruminants, supplemented by limited quantities of concentrate feeds and minerals. Typically, these concentrate feeds are composed mainly of cereals, with lower levels of protein sources. The composition of the feed ration fluctuates throughout the year based on forage availability, often using hay of medium to low quality. In contrast, medium and large farms tend to utilize hay, compound feeds, and silage for livestock nutrition all-over the year.

Pigs and broilers are generally fed compound feeds across all farm sizes. However, small farms, particularly those raising pigs, typically use a lower protein content in their feed formulations.

The condition and extent of pastures and meadows, as well as the cultivation of forage crops, are crucial for ruminant production in Albania. The country has abundant land resources for animal production, particularly with small ruminants, as pastures and meadows cover approximately 15% of the total land area.

From 2014 to 2019, the area dedicated to forage crop cultivation increased, reaching 220.1 thousand hectares; however, in the past two years, this area has decreased to around 214 thousand hectares by 2023. Additionally, forage yield rose from 29.9 tons per hectare in 2014 to 32.4 tons per hectare in 2018, with yield levels stabilizing over the last five years.

[20] The data presented in this section is sourced from INSTAT's 2024 Agriculture Statistical Yearbook 2023/"Vjetari Statistikor i Bujqësisë 2023." For more information, visit the official website: https://www.instat.gov.al/al/temat/bujq%C3%ABsia-dhe-peshkimi/bujq%C3%ABsia/#tab2.

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The Fier region stands out with the largest area cultivated with forage crops, accounting for 19.1% of the total surface and boasting the highest productivity at 42.9 tons per hectare. As a result, Fier contributes 25.3% of the total forage production in Albania. Conversely, the Kukës region shows the lowest productivity, at only 13.1 tons per hectare.

The significant productivity disparities among regions highlight the potential for improving forage production by utilizing better inputs, advanced farming machinery, and intensified cultivation methods. Enhancements should focus on the following areas: i) high-quality seeds; ii) phosphate fertilizers, particularly for perennial crops like alfalfa; iii) soil preparation equipment; iv) efficient irrigation systems and techniques; and v) the judicious use of plant protection products (PPP) for weed and pest management.

Despite the persistent productivity gap between lowland and mountainous regions, there is a genuine opportunity to improve and boost forage crop production. This advancement would positively impact both milk and meat production (through cost reduction) and environmental sustainability (by maintaining soil fertility, preventing erosion, and increasing carbon sequestration).

Approximately 50% of the fodder area is dedicated to alfalfa for fresh consumption and hay production, followed by clover, ryegrass, and other species. In conjunction with forage crops, around 136 thousand hectares are allocated for cereal cultivation, with corn occupying approximately 56 thousand hectares. Experts estimate that about 90% of cereal production is utilized as concentrate feed or corn silage for livestock nutrition. Alfalfa, along with meadow mixtures, currently represents the most significant and productive option for hay production. Additionally, corn and grass silage are gaining importance among medium and large cattle farms, as well as larger small-ruminant farms using imported breeds.

3.2 Profile of Main Value Chain Operators in Albania's Meat Sector[21]

3.2.1 Profiles of Meat Breeders and Their Breeding Systems

Profiles of Cattle Breeders: Most beef production farms are located in lowland regions and operate on a small scale, typically raising 25 to 30 calves. Only a few farms, mainly those involved in importing, manage production cycles of over 100 calves, sourcing these larger animals from countries like Romania and Bulgaria. Smaller farms usually acquire their livestock through importers or live animal markets.

[21] Based on the author's research and interviews conducted between 2020 and 2024, as well as the "Meat Sector Study Report," which provides selected sectorial analyses as a solid foundation for the preparation of the IPARD III program and the Strategy for Agriculture, Rural Development, and Fisheries for 2021–2027 (Project number: 2017.2192.7-001.00).

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Larger farms, often operated by importers, have begun direct breeding after years of importing calves. These calves are initially brought in with a live weight of 160 to 200 kg and are fattened to reach 300 to 350 kg. Butchers prefer to sell younger, smaller calves for fresh consumption, while frozen meat for processing primarily comes from imports. Event-hosting restaurants may purchase calves over 400 kg, but the general trend favours younger and lighter animals, reflecting consumer preferences for tender, lighter-coloured meat. However, this practice diminishes the competitiveness of the local beef sector, as heavier calves could provide more meat at a lower cost and better sensory qualities compared to younger animals.

Feeding practices on farms are similar, consisting of concentrate, hay, and straw, but larger farms typically have access to higher-quality feed. Smaller farms often keep calves tethered in substandard housing. Many small-scale farmers with just a few cows have stopped milking for sale, opting instead to buy seven-day-old calves from larger farms to nurse alongside their mothers. This approach, motivated by low milk prices, does not comply with EU animal welfare regulations and poses risks during the calves' transport.

The distinction between low-input extensive beef farming and higher-input semi-intensive farming is notable; extensive farms face a productivity gap due to inadequate feeding, while larger farms using compounded feed and established management practices achieve productivity levels comparable to those in EU countries.

Small-scale farmers often rely on fresh forage and have limited access to quality pastures, impacting cattle health and productivity. Many allocate their land for mixed crops, leading to insufficient feed supplies. Additionally, the average weight of cows on these small farms ranges from 350 to 450 kg, resulting in lighter calf birth weights and slower growth during fattening.

Progress has been made toward meat production; however, breeds favoured for artificial insemination still emphasize milk yield, leading to lower weight gains compared to meat-specific breeds. Many small farmers are unaware that management practices—such as housing conditions and space availability—affect cattle welfare and growth rates. Typically, small farmers sell their fattened calves at live markets or directly to butchers[22].

In contrast, medium and large-scale operations employing semi-intensive farming methods benefit from better housing, leased land for fodder, access to machinery, compounded feeds, and regular veterinary services. These specialized farms often have their own transportation for delivering animals to slaughterhouses and focus on fattening imported calves, which are generally more cost-effective than those sourced from other EU countries.

[22] Based on discussions held with farmers and extensionists during focus group sessions.

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Waste management is another significant challenge, with most slurry not being collected and manure often sold without proper maturation for effective fertilizer use.

Profiles of Small Ruminants Breeders: The majority of small ruminant farms are classified as micro or small-scale operations, with a few larger, modern farms focused primarily on milk production. The lambs and goat kids from these larger farms are often sold quickly to other farmers, who then raise them until they reach the market weight of 20–22 kg for lambs and slightly less for goat kids.

Flock sizes commonly range between 10 and 50 animals, leading to fragmented production. Many of these producers are individual keepers, often middle-aged or elderly. Traditional farming methods emphasize minimizing costs and inputs rather than enhancing output, making them efficient under local conditions but unsuitable for intensive production.

Despite these constraints, small ruminants are well-suited to the geographic and climatic conditions of Albania, efficiently utilizing natural grasslands and performing reasonably well despite limited feeding options. They can thrive on minimal food resources during winter and dry summer months. While many farmers favour local breeds, their productivity is generally low and their potential remains largely untapped.

Small ruminant farming in Albania encompasses several production methods:

(i) Extensive System: Transhumance for 6 to 8 months across all regions,
(ii) Semi-Intensive System: Transhumance for 5 to 6 months,
(iii) Grazing System: Utilizing permanent pastures near the farm, Natural Pasture System: Grazing lands within walking distance, with animals returning at night.

The extensive grazing system predominates in Albania's hilly and mountainous areas. Farmers primarily rely on traditional methods, with little exposure to modern technologies. Breeder selection is often based on personal experience rather than systematic practices, and feeding relies mainly on pastoral resources. Small ruminants typically graze from April to October. Makeshift shelters are common, and farmers with few animals often utilize communal pastures instead of migrating their herds. Lambing or kidding typically occurs once a year.

Transhumance was more prevalent during the socialist era until the mid-1990s, with routes extending from the southwestern coast to highland pastures in Gjirokastër and from the Dinaric Alps to Shkodër. However, land privatization has diminished these routes, resulting in animals remaining in mountain areas year-round. Herders are adept at selecting grazing locations based on soil quality, vegetation, water access, and altitude, which are vital for maintaining a balanced diet for their animals.

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During the winter months, animals are moved to valleys where they rely on a mixture of pasture hay, ditch hay, straw, and crop by-products for nourishment. Historically, oak leaves were also included in their diet (particularly for goats), though winter feed rations are typically low in protein and essential nutrients.

Shelter conditions in both highland and wintering locations are basic, necessitating improvements in space per animal, stable height, ventilation, lighting, and hygiene. The slow growth rates of lambs and kids, combined with low fat levels, create consumer expectations for naturally raised animals.

Recently, some farmers have shifted their focus from milk to meat production. The price of lamb and goat kids, and income from meat often exceeds that from milk, particularly in large, specialized farms with over 500 heads using imported breeds. With veterinary support, certain farmers are employing hormonal treatments to induce out-of-season breeding in ewes, enabling year-round lambing. This has led to a seasonal specialization in supply, with lambs from the Southwestern regions meeting demand during key holidays while mountain flocks cater to the rest of the year.

Profiles of Pig Farms: Only a few farms breed over 100 sows, primarily importing their sows and boars from Greece. The sows are typically of the Large White, Landrace, or Topigs breeds, while the boars are Duroc and/or Pietrain. Piglets from the Large White breed are often retained for replacement stock. Some of the largest pig farms meet EU housing standards and environmental regulations.

Feed is primarily produced on-site, with protein sources purchased from importers (such as AIBA, NDRAXHI, MBM) and other components sourced from local suppliers. These farms achieve an average reproductive performance of five pregnancies per sow over two years, and piglets are generally weaned between 21 and 28 days. While many of these farms have their own slaughterhouses, they occasionally sell pigs directly to butchers and restaurants, slaughtering them at weights of 100-110 kg. Some large growers utilize a dry feeding system where in-farm cereals are ground and mixed with purchased supplements containing essential proteins, vitamins, and minerals to create a balanced diet. Others employ a liquid feeding system or a combination of both approaches, and only a few have a complete feed delivery system using augers from storage bins. Advanced technologies, including computerized feeding systems, have been adopted in some of the larger farms to optimize diet formulations according to growth patterns and nutrient needs. Various feeder designs are also in use for those employing dry complete feed. Medium-sized farms generally manage between 20 to 40 sows and often implement practices and feeding strategies similar to those of larger operations, drawing insights from their experiences as clients. These farms typically achieve a reproductive performance of 4 to 5 pregnancies per sow within a two-

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year period, with piglets weaned at 24 to 28 days. Many of these farms operate retail outlets along national roads, such as in Fushe/Kruje, Mamurras, and Laç, and also engage in sales to butchers and restaurants. Small farms are the most common, typically maintaining 2 to 10 sows, utilize extensive breeding systems with inadequate housing conditions, and most sows are not of pure breeds. Small farmers often experience feeding challenges and health issues among their pigs. Animals are generally slaughtered at weights of 85 to 100 kg, depending on market prices and feed availability, resulting in meat that is fattier than that from larger farms. These farms typically operate in basic shelters and hand-feed their animals. Those who fatten one or two pigs for personal consumption often work in rudimentary barns and use low-protein feed, frequently supplemented with family food scraps. Most of these small farms are found in the northern and northeastern regions of the country.

Profiles of Broiler Farms: A limited number of farms raise around 200,000 broilers per cycle, such as Driza, Chicken Farm, and Erogert. Most of these farms import 24-hour-old chicks from Italy, Greece, etc. The largest broiler operations manage both upstream (chick procurement or hatchery management) and downstream (slaughtering, packaging, and distribution) functions. However, the breeding responsibilities are often shared between the main farm and various external contractors, who receive the chicks and feed, grow the birds, and then sell them back to the main facility.

One farm not only maintains its own parent stock but also operates a hatchery, supplying hybrid breeds such as Ross, Cob, and coloured/backyard chicks to both its own operations and external contractors. While most farms obtain one-day-old chicks through imports, some source them from larger poultry operations.

Generally, large farms feature modern facilities designed for controlled environments, and feed is delivered via auger lines. The housing and feeding technologies are sourced from reputable EU and Turkish companies. These farms often have their own slaughterhouses, storage, and packaging operations, processing both their broilers and those from contracting farms. Two of these large farms, have also invested in the treatment of slaughterhouse waste.

Medium-sized broiler farms typically raise between 50,000 and 100,000 broilers per cycle, with around 20 such operations exhibiting characteristics similar to larger farms.

Small farms, which raise about 10,000 to 20,000 broilers per cycle, often function as contractors for larger farms. These smaller operations have improved their practices in recent years and benefit

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from a secure market by purchasing chicks and feed from larger farms and selling the finished broilers back to them for processing[23].

Approximately one-third of the domestic demand is currently satisfied through imports, which include both live animals and frozen meat. Therefore, when considering investments or business development, it's more practical to focus on strategies for reducing imports rather than pursuing exports, as the latter is unlikely to be significant in the near future[24].

3.2.2 Profile of Meat Processing Plants and Slaughterhouses[25]

The agro-industry is a crucial sector in Albania, contributing significantly to the country's GDP while also possessing substantial employment potential. Among its subsectors, meat processing stands out as one of the most advanced. In the past 10 years, the meat processing industry has experienced significant transformations. Large-scale processing facilities have undergone considerable modernization, and many medium-sized plants now operate with updated equipment and have developed competitive product lines. While large and most medium-sized meat processors have primarily invested in technology and enhanced storage capabilities, small-scale processors face persistent challenges without much change in their circumstances.

In summary, meat processing is segmented into three distinct categories, each exhibiting significant differences in performance and financial sustainability: (i) slaughtering, (ii) meat processing along with large-scale importers of frozen meat, and (iii) facilities dedicated to the processing of animal by-products (ABP).

Slaughterhouses: The primary use of all meat types is for fresh consumption, with only a small percentage being sold to processors. The processing industry predominantly relies on imported (frozen) meat. This conclusion aligns with the findings of other authors[26]. Some meat processing companies, such as KMY, are equipped with their own slaughtering facilities.

[23] This arrangement aligns with the findings of Skreli and Imami (2019) in their Meat Sector Study, which highlights the interconnected nature of small and large poultry farms in Albania and the improvements made by smaller operations in recent years.

[24] Skreli, E., Imami, D (2019). Meat Sector Study. Albania Agribusiness Support Facility (AASF) Institute of Economics Studies and Knowledge Transfer Agricultural University of Tirana.

[25] Meat Sector Study Report, which offers targeted sector analyses to support the development of the IPARD III program and the Strategy for Agriculture, Rural Development, and Fisheries for 2021–2027 (Project number: 2017.2192.7-001.00), the author served as the primary researcher for this study. Furthermore, the author conducted additional research and interviews between 2020 and 2024.

[26] Skreli, E., Imami, D (2019). Meat Sector Study. Albania Agribusiness Support Facility (AASF) Institute of Economics Studies and Knowledge Transfer Agricultural University of Tirana.

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Slaughterhouses can function as independent service providers or can integrate with other activities, such as processing and trade. They can be categorized into four distinct types:

(i) Broiler Slaughterhouses: These facilities are part of large broiler enterprises and also handle packaging and storage. Their products are sold to supermarkets and retail outlets.
(ii) Slaughterhouses for Pig Importers: A number of these establishments have commenced or are planning to process meat into salami products. They supply pork to meat processors and restaurants, offering both whole carcasses and various meat cuts.
(iii) Mixed Slaughterhouses: These operations primarily focus on slaughtering cattle and sheep, though they may also process pigs. They cater to the domestic market for fresh meat, with a few owned by importers of pigs and/or cattle.
(iv) Slaughterhouses for Meat Processors: These facilities are primarily used to meet the internal needs of their parent companies, although they can also offer services to external clients. Fresh meat is typically sold in their retail shops or supplied to restaurants.

Meat Processors: Meat processing facilities can be classified into small, medium, and large-scale operations, with an emerging sub-sector dedicated to by-product processing.

Large and medium-sized processing plants typically establish formal contracts with frozen meat importers and maintain direct agreements with suppliers from other countries[27]. The largest processors have made significant investments in their own distribution and retail networks. These enterprises serve as the main suppliers to Albanian consumers in urban areas, particularly appealing to those who prefer to purchase meat products from shops and supermarkets. The primary offerings of this industry include sausages and a variety of cold cuts, mainly produced from pork. Additionally, beef and poultry products are processed alongside these offerings.

Small-scale processing units are typically located in smaller urban areas, catering to customers such as local shops in both urban and remote locations. Although they often do not operate in major urban centers, these processors navigate a blend of formal and informal business practices. To meet the required standards, smaller processors may need to invest in modernizing their production facilities, processing lines, and storage.

On-Farm Processing: Many farmers engage in processing small ruminant meats, such as goat meat, and pork into dried products. This is usually done on a small scale for personal consumption, as well as for direct sale to customers (or through traders). In some agritourism enterprises, these

[27] Sinani, M (2021). Meat Processing Industry in Albania. European Journal of Business, Economics and Accountancy Vol. 9, No. 2, 2021, pp 16-20. ISSN 2056-6018

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products have gained popularity, with demand rising alongside the increasing supply of agritourism services.

By-Product Processing Companies: Animal by-products (ABP) are categorized based on three risk levels with Category 1 representing the highest risk. Only certain products classified as Category 3 are considered suitable for human consumption.

The processing activities associated with ABPs vary in complexity and capital intensity. Nevertheless, the ABP industry relies on relatively intricate logistics, necessitating agreements with slaughterhouses and adherence to stringent food safety and environmental criteria, including wastewater and waste management.

There are 24 processing plants focused on ABPs, of which three (INCA Nord fish, Ital Casings and Diretto Group) possess CE certification (indicating compliance with EU standards and thus eligible to export ABPs to EU Member States). Additionally, there are three to four plants handling Category 2 ABPs, and one facility is currently under construction that will produce a specific type of Category 3 ABP intended for the pharmaceutical industry.

A noteworthy subset within the ABP sector consists of facilities that process manure; these are more numerous and are not included in the official ABP statistics (thus not counted among the 24 registered ABP processing plants). Currently, there are no ABP processing plants capable of treating the blood from slaughtered animals, nor are there facilities for processing Category 1 ABPs, which deal with the riskiest by-products.

In recent years, significant investments have been made in the ABP sub-sector, resulting in a reduction of processing plants (down from 47 in 2012) while simultaneously enhancing compliance with standards, as well as improving the range and quality of products.

3.2.3 Profile of Wholesalers, Importers and Retail Chains

Mediators and Wholesalers: This category of operators purchases live animals directly from breeders and sells them to various customers, including retail butchers. They often provide transportation for these live animals, typically using small trailers. Although these traders are active in the live animal market, it is not their primary area of business. They travel across different regions, adjusting their operations based on seasonal demand and supply trends. Additionally, mediators evaluate the health of the animals by observing key characteristics and may offer feeding solutions during the transaction process.

Importers: Importers generally fall into two main categories: (i) frozen meat importers, who supply meat to processing plants, and (ii) live animal importers, who primarily focus on pigs. These importers typically slaughter the animals in their own facilities and provide meat to both meat

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shops and processing companies. Compared to domestic market mediators, these operators tend to be larger and more specialized.

Retail Chains: Retail chains in Albania are organized into several categories: (i) Supermarket Chains: Supermarkets in Albania are rapidly expanding, and along with this growth, their sales of fresh and processed meat are also increasing. While they do not yet dominate the fresh meat value chain, their importance in the sale of processed meat products has significantly risen. (ii) Specialized Meat Chains Linked to Processors: In addition to the largest supermarket chains, specialized retail chains focused on meat products have emerged. Among the first of these was KMY Company, which offers a variety of fresh meat in Tirana and also serves customers in other major urban areas such as Durrës and Elbasan. Following this business model, EHW Company began offering both fresh and processed meat products, joined subsequently by other meat processing companies. (iii) The Halal Retail Segment: The halal market is well-developed and continues to grow, although certification is limited, with only one certified provider so far. Many large meat butchers and retailers, as well as some wholesalers, promote themselves as "Halal." The first halal meat provider, Kazazi Company, received certification in 2016 through ALBINSPECT with the support of the Albanian League of Imams. As many consumers prefer halal meat, formalizing certification will likely bring significant changes to the market distribution of such products. (iv) Traditional Meat and Butcher Shops: While supermarket chains play a crucial and growing role in distributing processed meat products, traditional butcher shops remain essential for fresh meat sales. These shops are the backbone of meat retailing in Albania, with butchers serving as trusted references for consumers regarding meat quality and safety. Traditional butcher shops are generally small and highly specialized.

Restaurants: Restaurants in Albania are categorized into several types: (i) Large Restaurants Specializing in Meat: These establishments are widely distributed across the country, with several popular ones located along key transport routes. Many of these restaurants provide a diverse range of meat products and typically purchase whole carcasses. Some even prefer to slaughter goat kids on-site; however, this practice is becoming less common, especially in urban areas where oversight by the National Food Authority (NFA) and other regulatory agencies is more rigorous. (ii) Small Restaurants Specializing in Lamb and Goat Meat: Known for their high-quality lamb and goat kid meat, these restaurants have a strong tradition and often associate their branding with the southern or northern regions of Albania. (iii) Restaurants Specializing in Traditional Dishes: Numerous establishments focus on traditional Albanian cuisine, which prominently features dishes incorporating lamb and goat meat, such as grilled chops.

3.2.4 Profile of Suppliers of Agricultural and Livestock Inputs

Suppliers of Agricultural and Livestock Inputs: Suppliers of agricultural and livestock inputs fall into several distinct categories:

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(i) Traders of Agricultural Inputs: This category encompasses suppliers of seeds, chemical fertilizers, pesticides, and, in some cases, animal feed or ingredients. It can be further divided into: a) Importers and wholesalers, b) Wholesalers, and c) Retailers or agricultural pharmacies.

Input suppliers play a vital role in the transfer of knowledge and the provision of advisory services, guiding farmers on how to address various challenges and enhance performance through the effective use of inputs. In practice, input suppliers and their personnel function as a private extension service. Farmers do not incur separate charges for these advisory services, as the costs are integrated into the price of the inputs they purchase. Consequently, they indirectly contribute to these services whether they utilize them or not. However, some retailers in rural areas may lack sufficient expertise to provide up-to-date advice across the diverse range of information that farmers require regarding inputs. Most input suppliers offer cereals, sunflower seed meal, and soybean meal for livestock feed, while a smaller proportion provides compounded feed, which is mainly imported from Serbia.

(ii) Animal Feed: The primary producers and importers of animal feed are feed mills, which primarily cater to the poultry sector (layers and broilers), but also manufacture and sell feed for cattle and pig farms. Notable feed mills such as AGROTECH, AIBA, DRIZA, and ARNA sell 20-50% of their daily production to other clients. Smaller dairy farms typically purchase animal feed directly from these mills, while medium and large farms buy ingredients from them or from agro-input dealers and prepare the finished products themselves.

(iii) Bull Semen: All bull semen in the country is imported. Over the past three years, around 50% of the imported and distributed semen has been sourced from beef breeds, including Belgian Blue, Charolais, Limousine, and Angus. Currently, the primary importers of bull semen are the LEAA Association, B.O.F.A.K. Association, and NORALB. Cattle farmers favour these breeds to promote higher daily weight gains for their calves during the fattening phase.

3.2.5 Longitudinal Analysis of the Meat Sector

A comprehensive longitudinal analysis of Albania's meat sector reveals significant transformations driven by historical, economic, and environmental factors. From the post-communist era, when livestock farming was predominantly small-scale and subsistence-oriented, the sector has gradually moved towards more commercialized and competitive practices.

In the early 1990s, following the complete privatization of the livestock sector, Albania experienced a surge in smallholder farms, which dominated the production landscape. This period was characterized by a focus on traditional farming methods and local breeds, resulting in varied productivity levels. During the late 1990s and early 2000s, there was some recovery due to

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increased investment and the establishment of more structured markets, but challenges such as limited access to quality feed, veterinary services, and modern technology persisted.

By the mid-2010s, the meat sector began to undergo a significant shift as larger, modern farms started to emerge, particularly in meat processing and production. Innovations in technology and improved infrastructure began to influence production capabilities positively. However, the sector remains fragmented, with many small farms struggling to compete in a rapidly globalizing market and an increasing dependency on meat imports highlighting ongoing vulnerabilities.

Looking to the future, the meat sector is poised for further evolution. The increasing emphasis on sustainable practices and compliance with EU standards will likely drive modernization efforts across all farm sizes. Key developments may include the integration of advanced farming technologies, enhanced animal welfare practices, and a greater focus on food safety and hygiene compliance.

The rise of consumer awareness regarding health, nutrition, and environmental impacts may also shape production practices as farmers adapt to changing market demands. Furthermore, the growing interest in plant-based proteins and alternative meat sources could present both challenges and opportunities for the traditional meat sector.

In summary, a longitudinal view of Albania's meat sector underscores its dynamic nature, marked by significant shifts in production practices, market structures, and consumer preferences. By understanding these historical trends and projecting future developments, stakeholders can better navigate the complexities of the sector and implement strategies that foster resilience and growth.

3.3 Meat Quality, Animal Health and Environment Issues.

3.3.1 Food Safety and Quality:

The National Food Authority (NFA) is the key institution responsible for ensuring the safety of meat and meat products. Its mission is to safeguard food safety throughout the entire food chain, from animal feed production to final consumption, by enforcing relevant legislation that protects public health and consumer interests. However, the oversight of meat quality remains inadequate due to various factors, such as direct sales by farmers and a general lack of awareness about meat hygiene practices[28].

NFA inspectors should place greater emphasis on assessing the microbiological content of meat products and explore strategies to improve this aspect to comply with EU standards. A critical goal

[28] Imami, D., Valentinov, V., & Skreli, E. (2021). Food Safety and Value Chain Coordination in the Context of a Transition Economy: The Role of Agricultural Cooperatives. International Journal of the Commons, 15(1), pp. 21–34. DOI: https://doi.org/10.5334/ ijc.1039

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for the NFA should be to enhance official controls through the adoption of a more effective risk-based approach and to generate clear, detailed statistics on official control activities supported by an upgraded information system.

As mentioned in the EC Albania Report 2023, the implementation of Albania's national residue monitoring plan remains an issue, particularly concerning veterinary medical products, pesticide residues, heavy metals, and mycotoxins in live animals and animal products. Reliable screening methods for relevant species and commodities are not yet in place. Progress in developing the laboratory network's capacity, accreditation, and validation methods has been limited. Additionally, there has been no advancement on the legal framework for animal by-products. Preliminary work on categorizing food establishments has started, but further efforts are needed to align with EU standards [5].

3.3.2 Animal Welfare and Animal Health:

To enhance animal welfare, the Ministry of Agriculture and Rural Development (MARD) has introduced National Minimum Standards (NMS) in alignment with EU practices. However, the enforcement of animal welfare regulations is weak; a significant number of animals evade welfare checks at various stages from breeding through to slaughter[29].

Farmers have limited access to guidelines and recommendations regarding the proper design of barns and best practices in animal husbandry. Many progressive farmers have indicated that they primarily obtain information from colleagues working abroad or from personnel associated with suppliers of inputs and farm machinery.

Despite regulations governing antibiotic use in animal production, enforcement remains insufficient, leading to significant health risks. The illegal use of growth-promoting substances exacerbates these issues[30], jeopardizing animal health by increasing their vulnerability to infectious diseases and posing a threat to human health through the spread of antibiotic-resistant strains. Furthermore, limited access to hoof care expertise compounds production and health

[29] Gjeci, G.; Bicoku, Y.; Imami, D. Awareness about food safety and animal health standards—The case of dairy cattle in Albania. *Bulg. J. Agric. Sci.* **2016**, *22*, 339–345. an d Zhllima, E.; Imami, D.; Canavari, M. Consumer perceptions of food safety risk: Evidence from a segmentation study in Albania. *J. Integr. Agric.* **2015**, *14*, 1142–1152.

[30] Troka, P., Kapaj, I (2023). An Examination of Food Scandals in Albania: Causes, onsequences, and Policy Recommendations. XXth International Balkan and Near Eastern Congresses Series on Economics, Business and Management, Republic of North Macedonia.

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challenges in livestock. Additionally, the management and control of zoonotic diseases are also inadequate[31].

Overall, secondary legislation related to animal welfare is inadequately enforced and poorly implemented, largely due to the absence of advocacy groups and weaknesses within public administration[32].

3.3.3 Environment

The management of manure is often considered inadequate, particularly on smaller farms where resources and expertise may be limited. This situation poses a significant environmental concern, as large integrated operations in cattle, pig, and poultry farming contribute substantially to pollution through poor manure management practices. The accumulation of untreated manure can lead to the contamination of soil and water sources, adversely impacting local ecosystems and public health.

While some large-scale farms have begun to invest in manure treatment and management solutions—such as anaerobic digesters and advanced storage systems—these efforts are not yet widespread. Many farms continue to rely on outdated practices that fail to comply with environmental regulations [3]. The resulting inefficiencies not only create a considerable gap in regulatory compliance but also threaten both environmental integrity and public health, as nutrient runoff and pathogens can enter the water supply.

To mitigate these challenges, it is essential for large and medium-sized farms to prioritize investments aimed at upgrading their infrastructure. This includes enhancing barn designs to improve waste collection and storage, investing in advanced manure handling equipment, and implementing effective manure management systems. Such investments are not merely beneficial; they are imperative for sustainable agricultural practices.

Moreover, to ensure these improvements lead to meaningful change, increased regulatory oversight and enforcement are necessary. Authorities should ramp up their efforts to monitor compliance with environmental standards, creating a framework that incentivizes farms to adopt best practices in manure management. By combining investment in infrastructure with better enforcement of environmental norms, it is possible to move towards a more sustainable agricultural system that protects both the environment and public health.

[31] Vuksani, A., Vuksani Gj (2024): The Albanian Legislation on Meat Production and Commercialization Differs from EU Standards. Ankara International Congress on Scientific Research-X June 25-27, 2024.

[32] Biçoku, Y (2013: Animal Welfare in Albania. 3rd International Conference of Ecosystems (ICE2013) Tirana, Albania, May 31 - June 5, 2013. Proceeding book, page 641-644. ISBN: 978-9928-4068-6-6.

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3.4 Extension Service

The Albanian advisory service in operation started in 1992, and for a one-decade was supported with technical assistance by donors financed projects. The agriculture advisors were trained with the concepts and principles of extension service and communication. Since March 2018, the extension service organization is organized in four regions (with centres in Tirana, Korça, Lushnja and Shkoder) called the Regional Agencies of Agricultural Extension [3].

The National Extension Service (NES) is fully funded by MARD and comprises approximately 260 agronomists and livestock specialists operating at both regional and district levels, supported by 120 Agricultural Information Centers. Farmers receive guidance from a variety of sources, including the Public Extension Service (PES), Agricultural Technology Transfer Centers (ATTCs), the Agricultural University of Tirana, donor-funded projects, and private sector organizations[33].

Field advisors are tasked with providing information, consultation, and training to farmers. ANES serves around 70,000 farmers each year, which accounts for less than 25% of the overall farming population [1].

ANES has the potential to be a pivotal element within the Agricultural Knowledge and Innovation System (AKIS). However, several challenges hinder its effectiveness [1]:

- Low Specialist-to-Farmer Ratio: With approximately one specialist for every 1,700 farmers, the support capacity is significantly stretched.
- Overly Broad Responsibilities: Extension specialists often face responsibilities that extend beyond their specific areas of expertise, which can dilute their effectiveness.
- Insufficient Financial Support: Funding for extension activities constitutes only 1.5% of the overall budget, limiting both investment and operational capabilities.
- Aging Workforce: The average age of specialists is 55, and many possess limited IT skills, which can hinder modernization efforts.
- Limited Expertise: There is a lack of knowledge in critical areas such as farm management, marketing, and business planning, reducing the effectiveness of advisory services.

[33] Associations such as the Albanian Fertilizer and Agri-Business Dealers' Association (AFADA), the Albanian Poultry Farmers Association (AFPA), the Albanian Dairy and Meat Association (ADAMA), and the Livestock Entrepreneurs Association of Albania (LEAA) are prime examples of private sector extension providers. These organizations were established with the support of USAID-funded projects implemented by IFDC (AFADA and AFPA) and Land O'Lakes (ADAMA and LEAA).

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- Difficulty in Providing Up-to-Date Information: This challenge adversely impacts the adoption of new technologies among farmers.

While ANES has the potential to drive technological advancement on farms, this potential remains largely unrealized due to inadequate funding, limited opportunities for professional development, outdated technology, a lack of strategic direction, and issues related to leadership and management.

4. CONCLUSIONS

Sector Privatization and Structure: The complete privatization of the livestock sector in Albania, which began before land privatization and was finalized in 1993, has led to a predominance of small production units in cattle, pig, sheep, goat, and horse farming, while poultry production has shifted toward large-scale units. This dichotomy highlights a significant structural challenge within the sector.

Government Support and Meat Production Issues: While the Albanian government, through the Ministry of Agriculture and Rural Development (MARD), is committed to improving competitiveness in primary production and reducing imports, meat production itself does not receive prioritized support. Key factors influencing meat production are linked to traditional practices and the need for nutritious livestock products, which remains crucial to Albanian diets.

Decline in Livestock Populations: There has been a marked decline in livestock populations from 2014 to 2023 across various categories, including cattle, sheep, goats, and pigs, indicating significant challenges facing farmers, primarily due to rising costs and competition from imported products. The poultry sector has also seen declines after previous growth, emphasizing the volatility within these markets.

Meat Production Trends: The Albanian meat production sector has undergone significant transformation since land privatization. Despite modest improvements in average farm size, challenges such as low productivity compared to EU standards persist, particularly in beef and small ruminant meat production. The shift in focus towards meat production among traditional dairy farmers highlights changing economic incentives within the sector. Live weights for various livestock categories remain significantly lower than EU averages, pointing to a need for better nutrition, farming practices, and specialization.

Breeding Practices and Feeding Challenges: Breeding practices are diversified, with both local and imported breeds present. However, small ruminants primarily depend on traditional extensive farming methods with low productivity. Despite the prevalence of adequate grazing land, challenges in feeding and breeding practices hamper meat production potential.

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Quality of Feed and Fodder Availability: The findings underscore the critical importance of improving feed quality and availability in livestock production. Investment in pasture management and fodder crop cultivation remains essential for increasing productivity and reducing feed costs.

Animal Welfare and Environmental Concerns: The enforcement of animal welfare regulations and effective management of manure among livestock farms raises significant concerns. Recommendations focus on enhancing infrastructure and compliance with environmental norms to mitigate pollution and protect public health.

Role of Extension Services: The Albanian National Extension Service has potential but faces challenges related to staffing, funding, and expertise. Increasing support for extension services could enhance the technological capability of farmers and ultimately lead to improved practices in livestock production.

Market Dynamics and Consumer Preferences: Changing consumer preferences towards meat products and the growing influence of import competition necessitate strategic interventions to enhance Albanian meat production's competitiveness and sustainability. Overall, the livestock sector must adapt to shifting market dynamics, prioritize modernization, and invest in both production capacity and environmental management to meet future challenges.

5. FUTURE RESEARCH DIRECTIONS

To further enhance Albania's meat sector, several key areas for future research should be prioritized:

1. **Impact of Policy Interventions**: Investigate the effectiveness of government and EU policies designed to bolster local meat production and competitiveness against imports.
2. **Technological Adoption**: Explore how modern farming technologies can improve productivity and identify barriers preventing smallholders from adopting these innovations.
3. **Sustainability Practices**: Assess the environmental impact of current livestock farming practices, focusing on sustainable manure management and feed sourcing.
4. **Extension Services Effectiveness**: Evaluate the role of the National Extension Service in farmer performance, identifying gaps in training that hinder knowledge transfer.
5. **Market Dynamics**: Study the economic implications of increasing meat imports on local producers and understand consumer price sensitivity related to imports.
6. **Smallholder Farming Contributions**: Investigate the socio-economic impact of smallholder farms within the meat sector on rural livelihoods and local economies.
7. **Animal Welfare Regulations**: Analyze the effectiveness of existing animal welfare regulations, their enforcement, and barriers to compliance.

8. **Regional Production Disparities**: Examine geographic differences in meat production levels to understand how local conditions affect production efficiency.
9. **Climate Change Effects**: Research how climate change impacts livestock farming, particularly concerning feed production and livestock health.

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