

American Journal of Economics and Business Management

Vol. 9 Issue 11 | **pp.** 198-205 | **ISSN:** 2576-5973

Available online @ https://www.globalresearchnetwork.us/index.php/ajebm

Article

Problems of Improving the Financial Results of Poultry Farming Entities

Bekdjanov Berdakh Nadjimovich

1. Independent Researcher, Nukus State Technical Institute, Nukus, Republic of Karakalpakstan, Uzbekistan

* Correspondence: -

Abstract: The article identifies the factors that limit the financial results of poultry-farming entities in Uzbekistan, with the Republic of Karakalpakstan as the regional context, and quantifies how much each factor matters for profitability. The study combines (i) a review of the efficiency, risk and vertical-integration literature; (ii) a statistical and descriptive analysis of published sector data for 2022–2026 (production, flock size, imports, farm structure, policy measures) with a Kazakhstan benchmark; and (iii) a stochastic enterprise model of a broiler producer, estimated by Monte Carlo simulation (20,000 draws per scenario) with Welch tests, Spearman rank correlations, standardized regression, one-at-a-time sensitivity, break-even and stress analysis. The simulation parameters are calibrated, illustrative assumptions and not observed farm accounts; this is stated throughout. In 2025 the national poultry population grew by 8.7%, egg output by 6.2% and total meat output by only 2.7%, while poultry-meat imports rose 14.2%. Official targets (1 million tonnes of poultry meat, 10.5 billion eggs) were not met. In the simulation, a conventional enterprise earns a mean net margin of 3.4% with a 36.8% probability of loss. Modernization (feed conversion 2.05 → 1.75, mortality 8% → 4.5%) raises the mean margin to 12.8% (loss probability 11.5%), and adding own feed milling raises it to 16.0% (6.0%). Feed price and selling price explain almost all margin variance (standardized coefficients −0.66 and +0.65; $R^2 = 0.99$). A 20% feed-price shock pushes the conventional enterprise into a mean loss of 10.0% (75.6% probability of loss).

Keywords: poultry farming; financial results; profitability; feed cost; Uzbekistan; Karakalpakstan; Monte Carlo simulation; vertical integration.

Citation: Nadjimovich, B. B. Problems of Improving the Financial Results of Poultry Farming Entities. American Journal of Economics and Business Management 2026, 9(11), 198-205

Received: 13th Aug 2026
Revised: 28th Sep 2026
Accepted: 15th Oct 2026
Published: 05th Nov 2026

Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/)

1. Introduction

Poultry is the fastest route to animal-protein self-sufficiency in a growing, import-dependent food market. Uzbekistan has declared poultry a priority branch: from 1 April 2025 poultry, milk and egg producers became eligible for a 50% VAT discount for three years, provided the activity yields at least 90% of their profit; poultry farms also keep a 50% discount on profit and property taxes; the import duty on trucks of 5–20 tonnes fell from 70% to 5%; and a USD 50 million credit line was allocated to Microcreditbank [1], [2]. Investment of about USD 420 million is expected by the end of the decade, and a USD 100 million poultry cluster is planned [3], [4].

Yet the results are modest. Despite the targets of 1 million tonnes of poultry meat and 10.5 billion eggs in 2025, output growth has lagged [5], and imports have risen [6], [7]. This gap between policy effort and outcomes suggests that the binding constraints lie at the level of the enterprise, in costs, productivity, financing and market structure, and not only in the fiscal environment.

The Republic of Karakalpakstan is an instructive regional context. It is a desert region at the periphery of the national grain, feed and processing network, with a small economy [8], so logistics and input costs weigh heavily on the margins of local poultry entities. At the same time, no regional poultry statistics were found in public sources; regional statements in this paper are therefore marked as inferences.

The research questions are:

RQ1. How have output, productivity and structure of the poultry sector evolved, and how do they compare with Kazakhstan?

RQ2. What is the cost and risk structure that determines the financial results of a poultry entity?

RQ3. Which managerial and policy levers improve financial results most, and by how much?

Literature Review and Theoretical Framework

Efficiency and profitability.

Farrell [9] separated technical from allocative efficiency, which allows firm results to be explained by how well inputs are converted into output and how well input mixes respond to prices. Stochastic frontier analysis [10], [11], [12] and data envelopment analysis [13] became standard tools for measuring such inefficiency in livestock sectors. A study of egg production in Surkhandarya province, Uzbekistan, applied a stochastic frontier approach and showed that feed, flock size and other inputs determine efficiency in local farms [14]. In poultry, the technical coefficients that matter most are feed conversion ratio (FCR), mortality, and capacity utilization, because feed is the dominant cost item in both broiler and layer production.

Risk and price volatility.

Agricultural margins are exposed to input and output price risk, disease risk and weather risk [15]. Where margins are thin and the cost structure is dominated by a single volatile input, small shocks produce large swings in profit. Quantitative risk analysis by simulation [16] and global sensitivity analysis [17] are the appropriate tools to rank sources of such variability.

Vertical integration, transaction costs and smallholders.

Williamson [18] explains integration by transaction costs: where inputs, such as feed and day-old chicks, and outputs are exposed to opportunism and quality uncertainty, firms internalize stages. Poultry has been among the most integrated livestock chains in the world, and the livestock revolution literature links rising demand for animal products to the rise of large integrated producers and to the pressure on smallholders [19]. Barrett [20] shows that smallholders face high transaction costs and thin markets, which limit their participation in commercial value chains. This is relevant for Uzbekistan, where poultry has long been bred mostly in small backyard farms.

Finance.

Credit rationing under information asymmetry [21] implies that small, collateral-poor producers face higher interest costs and rationed access to working capital, which in a cyclical branch with long capital payback is a serious constraint.

Hypotheses.

H1. Sector output growth in Uzbekistan is driven by flock expansion more than by productivity, and the sector remains dominated by small, low-productivity producers.

H2. Feed cost and selling-price volatility explain most variance in the financial results of a poultry entity, so that feed-related levers (FCR, own milling) dominate the effects of other levers.

H3. Technological modernization combined with feed integration raises profitability and reduces loss probability materially, and more than concessional credit alone.

2. Materials and Methods

Design.

The study is an explanatory, mixed-method design with two parts. Part A is a statistical and descriptive analysis of published sector data [6], [7]. Part B is a stochastic enterprise model. The two-part design is chosen because audited farm-level financial

statements of Uzbek poultry entities are not publicly available, while the research question concerns the relative importance of cost and risk drivers, which a transparent model can quantify. The model is not an estimate of observed profits.

Data.

Sector data come from official statistics as reported in trade and news sources [4], and Kazakh Ministry of Agriculture reports cited by TV BRICS and Tridge. Derived indicators were computed by the author: growth ratios, implied productivity change (index of output divided by index of flock), compound annual growth rate CAGR = $(V_2/V_1)^{(1/n)} - 1$, and structural shares.

Data-quality notes: (i) trade reports give different statistics for poultry meat in 2024 (about 800,000 tonnes cited as a presidential figure, but 544,700 tonnes reported for 2023 with 3.5% growth), which is not reconcilable with a 2.7% growth rate and probably reflects different definitions (including backyard production); (ii) one report writes egg output as 6.7 million pieces, which is clearly a unit error for 6.7 billion; (iii) the reported "meat and poultry production" of 2.17 million tonnes is total meat, not poultry alone. Where the definitions are unclear, the indicator is used only as a direction of change.

Enterprise model.

A representative broiler enterprise is modeled per bird placed. Revenue is output × selling price, where output = slaughter weight (2.2 kg) × survival rate. Costs are feed (output × FCR × feed price) plus other costs (day-old chicks, labor/energy/veterinary, overhead and depreciation, interest). Net margin is (revenue − cost)/revenue. All monetary values are index numbers (baseline selling price = 100 per kg live weight) to avoid asserting unverified price levels. The baseline cost structure follows the commonly reported pattern that feed represents roughly 60–70% of production cost: at the baseline of the conventional scenario feed is 66 index units per kg, and other costs total 30 (chicks 8, labor/energy/veterinary 10, overhead 8, interest 4), giving a deterministic baseline margin of 4.0%. The full specification is in Appendix A.

Stochastic inputs: selling price (lognormal, CV 8%), feed price (lognormal, CV 12%), FCR (normal, truncated to 1.4–3.0), mortality (beta distribution) and other costs (lognormal, CV 5%). **Scenarios:** S0 conventional (FCR 2.05 ± 0.12; mortality 8 ± 2.5%); S1 modernized housing and biosecurity (FCR 1.75 ± 0.10; mortality 4.5 ± 1.5%; overhead +1.5); S2 = S1 plus own feed milling (feed price −8%; overhead +3.0); S3 = S0 with concessional credit (interest 4 → 2).

Statistical procedures.

Each scenario uses 20,000 Monte Carlo draws (fixed random seed 2026, Python/NumPy/SciPy). Reported statistics: mean, standard deviation, 95% confidence interval of the mean, 5th/50th/95th percentiles and probability of loss. Scenario differences are tested with Welch's t-test. Driver importance is assessed by Spearman rank correlation and a standardized OLS regression of margin on log price, log feed price, FCR, mortality and log other costs; deterministic ±10% one-at-a-time sensitivity, break-even values and a +20% feed-price stress test complete the analysis.

Limitations.

Model parameters are calibrated assumptions based on typical industry patterns; they are not observed values for Uzbek or Karakalpak farms. Because the margin is an index-based construct, results should be read as relative effects (differences between scenarios, ranking of drivers) and not as forecasts of actual profit. No regional poultry dataset was found. These limitations are returned to in Section 6.

3. Results

Sector dynamics and structure.

Table 1. Selected indicators of the poultry sector of Uzbekistan

Indicator	Value	Source
Poultry population, 1 Oct 2025	≈110 million birds (+8.7% y/y)	Poultry World (2025)

Indicator	Value	Source
Total meat output, Jan–Sep 2025	≈2.17 million t (+2.7%) (all meat)	Poultry World (2025)
Egg output, Jan–Sep 2025	≈6.7 billion (+6.2%)	AVINews (2025)
Government 2025 targets	1.0 million t poultry meat; 10.5 billion eggs	Food & Agribusiness (2025a)
Poultry-meat imports, Jan–Sep 2025	54,600 t (+14.2%)	Poultry World (2025)
Poultry meat, 2023	544,700 t (+3.5%)	Food & Agribusiness (2025b)
Egg production by farm type, H1 2022	Household (dekhkan) farms 62.9%; farms 12.9%	ThePoultrySite (2022)
Modern slaughter coverage of poultry	≈20% (target 50%)	Food & Agribusiness (2025c)

Three derived statistics follow. First, the implied productivity change is negative: flock growth of 8.7% against egg growth of 6.2% gives an index of output per bird of 1.062/1.087 = 0.977, i.e. about −2.3% (the periods are not perfectly aligned, so this is indicative). Second, imports in January–September 2024 were about 47,800 t (54,600/1.142), so the increase was about 6,800 t, and annualizing the 2025 figure gives roughly 73,000 t. Third, commercial structure is thin: household farms produced 62.9% of eggs [22] and registered farms 12.9% in the first half of 2022, so the remaining 24.2% (author's calculation) came from other organizations. A sector in which about two-thirds of eggs come from household flocks has limited capacity for standardized accounting, scale economies and financial discipline.

These results support H1: growth is extensive (more birds), not intensive (more output per bird), imports continue to rise, and the structure is dominated by small producers.

Benchmark: Kazakhstan.

Kazakhstan raised poultry-meat output from 235,300 t in 2020 to 372,500 t in 2025, a 58% rise, which equals a CAGR of about 9.6% per year, and raised the domestic share of consumption from 58% to 78% [23]. The country has 43 egg and poultry farms, 36 meat-poultry enterprises and 7 breeding farms [24], and the sector is organized around a small number of large integrated companies, such as Aitas, with a 43% share of the regional market [25]. The contrast is instructive: Kazakhstan's growth came from consolidation and integration with feed mills and processing, while Uzbekistan's planned investments are aimed at the same bottlenecks but remain mostly prospective [4].

Enterprise model: scenario results.

Table 2. Simulated net margin by scenario (20,000 draws each; index-based, illustrative)

Scenario	Mean margin, %	SD	95% CI of mean	P(loss), %	5th pct	95th pct	Feed share of cost, %
S0 Conventional	3.37	11.87	3.20–3.53	36.8	−17.12	21.60	68.5
S1 Modernized	12.80	10.40	12.65–12.94	11.5	−5.46	28.74	64.7
S2 Modernized + own feed	16.02	9.81	15.88–16.15	6.0	−1.19	31.00	61.7
S3 Conventional + cheap credit	5.33	11.79	5.16–5.49	30.5	−15.45	23.02	70.0

Welch tests against S0 show that all differences are significant at $p < 0.001$: S1 +9.43 percentage points ($t = 84.5$), S2 +12.65 points ($t = 116.1$) and S3 +1.96 points ($t = 16.6$). Modernization therefore improves the mean margin about 4.8 times more than concessional credit (9.43 vs 1.96 points), and own feed milling adds another 3.2 points. The probability of loss falls from 36.8% in the conventional scenario to 11.5% and 6.0% in S1 and S2, and the lower tail (5th percentile) improves from −17.1% to −5.5% and −1.2%. These outcomes support H3: technological upgrading plus feed integration is the largest lever, while credit cost alone is a second-order lever.

What drives the margin: sensitivity and variance.

In the conventional scenario the Spearman rank correlations with margin are +0.64 for selling price, −0.65 for feed price, −0.31 for FCR, −0.13 for other costs and −0.07 for mortality. The standardized regression gives coefficients of +0.652 (log price), −0.663 (log feed price), −0.327 (FCR), −0.128 (log other costs) and −0.069 (mortality), with $R^2 = 0.991$. Price and feed price together account for most of the explained variance, and FCR is the third driver, which supports H2.

Table 3. Deterministic ±10% sensitivity of the conventional-scenario margin (baseline 4.0%)

Change	Effect on margin, percentage points
Selling price +10% / −10%	+8.73 / −10.67
Feed price +10% / −10%	−6.60 / +6.60
FCR +10% / −10%	−6.60 / +6.60
Other costs +10% / −10%	−3.00 / +3.00
Mortality +10% (relative) / −10%	−0.26 / +0.26

Two observations follow. Feed price and FCR have identical effects because both scale the feed bill by the same proportion, so a 10% improvement in FCR is financially equivalent to a 10% fall in feed price. Mortality matters little in relative terms at this level, although high-mortality events (disease outbreaks), which this normal-range model does not capture, are likely to be more damaging. The break-even values are: a selling price of 96.0 (4% below the baseline), an FCR of 2.17 (6% above the baseline), or a feed price 6.1% above baseline. The conventional enterprise is therefore only about 4–6% away from losing money on any single factor.

Stress test: feed-price shock.

Table 4. Effect of a 20% feed-price increase

Scenario	Mean margin, %	P(loss), %
S0 Conventional	−10.01	75.6
S1 Modernized	1.52	42.6
S2 Modernized + own feed	5.47	29.7
S3 Conventional + cheap credit	−7.93	70.2

A 20% feed shock turns the conventional enterprise loss-making in three cases out of four, whereas a modernized and integrated enterprise stays profitable on average. Resilience to input-price shocks is thus the main advantage of better feed conversion and feed integration.

4. Discussion

Interpretation.

The evidence points to one central message: the financial results of poultry entities are decided mostly by the cost and productivity of feed conversion and by exposure to price shocks, and much less by the nominal tax regime. The simulation shows that a conventional enterprise operates within a few percent of its break-even point (4% on price, about 6% on FCR or feed price), so that normal year-to-year volatility pushes it into loss

in more than one case in three. Tax relief of the kind adopted in 2025 (50% VAT discount, 50% profit and property tax discount) improves cash flows only for enterprises that are already profitable and meet the 90% core-activity condition; it does not change the cost structure that produces the losses. This is consistent with the sector evidence in Section 4.1: output per bird did not rise, and imports continued to grow, even though incentives were introduced.

The results also fit the theoretical expectations. The strong role of feed corresponds to the efficiency literature, in which technical efficiency in input conversion is the main source of profit differences [9], [12]. The advantage of the integrated scenario matches Williamson's [18] transaction-cost argument: internalizing feed production reduces exposure to input-price opportunism and improves the ability to control quality. The Kazakhstan experience, where growth was achieved through large integrated companies, is consistent with both. The limited effect of concessional credit (+1.96 points) is also instructive: credit relief helps, but the problem is not primarily the price of money, and it can become a subsidy to unproductive capacity unless tied to productivity-enhancing investment [21].

Problems identified.

Table 5. Problems that limit the financial results of poultry entities and their evidence base

Problem	Mechanism	Evidence	Strength
High and volatile feed cost; dependence on feed inputs	Feed is about two-thirds of cost; a 10% shock moves margin by 6.6 points	Simulation (Tables 2–4); feed capacity expansion plans (Food & Agribusiness, 2025c)	Model-based
Low technical efficiency (FCR, mortality)	Each 10% of FCR equals 6.6 points of margin	Simulation; negative implied output per bird in 2025	Model-based and data-based
Fragmented structure dominated by household flocks	Low scale, no standardized accounting, weak access to finance	62.9% of eggs from household farms (ThePoultrySite, 2022)	Data-based
Weak processing and slaughter infrastructure	Low value added, quality losses	Only about 20% of poultry covered by modern slaughter (Food & Agribusiness, 2025c)	Data-based
Import competition	Price pressure from imported meat; imports up 14.2%	Poultry World (2025)	Data-based
Thin margins and high loss probability	Operation near break-even	Simulation	Model-based
Credit and capital costs	Long payback, rationed credit	Literature; simulation (S3)	Mixed
Regional logistics (Karakalpakstan)	Distance from feed and processing centers raises delivered feed and output costs	Not measured; geographic inference	Inference

Recommendations.

The recommendations are ordered by the size of their modeled effect.

1. **Make feed the center of financial policy.** Since each 10% of feed price or conversion efficiency changes the margin by about 6.6 points, programs for compound-feed capacity (planned to reach 3.3 million tonnes), local production of feed grain and protein, and joint purchasing by small producers have the highest leverage. For Karakalpakstan, a regional feed mill or a cooperative feed-purchasing arrangement should be assessed first.
2. **Tie support to productivity.** Condition tax incentives and concessional credit on measurable indicators (FCR, mortality, capacity utilization), and finance modernization of housing, ventilation, feeding systems and biosecurity. In the model, modernization is worth about 9.4 margin points against about 2 points for cheaper credit.
3. Promote integration and contract farming. Encourage clusters in which small and medium producers are linked to a feed mill, hatchery and slaughterhouse through contracts, to reduce transaction costs and give small producers access to standardized inputs and markets [18], [20], [19].
4. **Build risk-management tools.** Offer feed-price hedging through forward contracts with the feed mill, livestock insurance and working-capital credit lines indexed to the production cycle, since the loss probability under a feed shock exceeds 70% for conventional enterprises.
5. **Develop slaughter and cold-chain capacity,** so that producers capture value added and reduce dependence on live-bird or raw sales.
6. **Introduce standardized financial reporting and benchmarking** for poultry entities (cost per kg, FCR, mortality, margin), with a regional benchmark published for Karakalpakstan. Without data, neither banks nor policymakers can distinguish efficient from inefficient producers.

5. Conclusion

The paper shows that the expansion of the Uzbek poultry sector has been largely extensive: flock size grew faster than output, official targets were missed, imports increased, and most egg production remains in household flocks. At the enterprise level, the model indicates that a conventional producer earns a thin average margin of about 3.4% with a 36.8% chance of loss, that feed cost and selling price explain more than 99% of margin variance in a standardized regression, and that modernization combined with feed integration raises the mean margin to 16.0% and cuts the loss probability to 6.0%. Cheaper credit alone raises the margin by only about 2 points.

The practical conclusion is that improving financial results requires a shift in policy emphasis from general tax relief toward feed supply, technical efficiency, integration and risk management, and that these measures matter most in peripheral regions such as Karakalpakstan, where logistics make feed more expensive and markets thinner.

Limitations and future research. The enterprise results come from a calibrated model with index-based prices and assumed distributions; they are relative effects and not estimates of actual profit. The next step is to replace the assumptions with observed data: financial statements and technical records (FCR, mortality, feed cost, price) of a sample of poultry entities in Karakalpakstan and other regions, followed by stochastic frontier or DEA estimation, regression of return on assets on farm characteristics, and a panel analysis of the effect of the 2025 tax measures. A structured survey of regional poultry entities would also fill the regional data gap.

REFERENCES

[1] Food & Agribusiness, "Uzbekistan embarks on large-scale poultry industry support programme," 2025. [Online]. Available: https://www.foodagribusiness.world/poultry/uzbekistan-embarks-on-large-scale-poultry-industry-support-programme

[2] Tridge, "Uzbekistan embarks on large-scale poultry industry support programme," 2024. [Online]. Available: https://www.tridge.com/news/uzbekistan-embarks-on-large-scale-poultry-in-wrdjtt
[3] Food & Agribusiness, "Uzbekistan plans to establish poultry cluster worth US$100 million," 2025. [Online]. Available: https://www.foodagribusiness.world/poultry/uzbekistan-plans-to-establish-poultry-cluster-worth-us100-million
[4] Food & Agribusiness, "Uzbekistan plans US$432m investment to boost poultry production," 2025. [Online]. Available: https://www.foodagribusiness.world/poultry/uzbekistan-plans-432m-investment-to-boost-poultry-production
[5] Azernews, "Uzbekistan increases meat production," 2023. [Online]. Available: https://www.azernews.az/region/217746.html
[6] AVINews, "Poultry expansion stalls in Uzbekistan," 2025. [Online]. Available: https://avinews.com/en/poultry-expansion-stalls-in-uzbekistan/amp/
[7] Poultry World, "Uzbekistan sees sluggish progress in expanding poultry production," 2025. [Online]. Available: https://www.poultryworld.net/the-industrymarkets/market-trends-analysis-the-industrymarkets-2/uzbekistan-sees-sluggish-progress-in-expanding-poultry-production/
[8] National Statistics Committee of the Republic of Uzbekistan, "Gross regional product, January–September 2025," 2025. [Online]. Available: https://stat.uz/img/press-relizlar/analitika-vrp_eng_p23554.pdf
[9] M. J. Farrell, "The measurement of productive efficiency," *Journal of the Royal Statistical Society: Series A*, vol. 120, no. 3, pp. 253–290, 1957.
[10] D. Aigner, C. A. K. Lovell, and P. Schmidt, "Formulation and estimation of stochastic frontier production function models," *Journal of Econometrics*, vol. 6, no. 1, pp. 21–37, 1977.
[11] G. E. Battese and T. J. Coelli, "A model for technical inefficiency effects in a stochastic frontier production function for panel data," *Empirical Economics*, vol. 20, no. 2, pp. 325–332, 1995.
[12] S. C. Kumbhakar and C. A. K. Lovell, *Stochastic Frontier Analysis*. Cambridge, U.K.: Cambridge University Press, 2000.
[13] A. Charnes, W. W. Cooper, and E. Rhodes, "Measuring the efficiency of decision making units," *European Journal of Operational Research*, vol. 2, no. 6, pp. 429–444, 1978.
[14] "Economic efficiency of poultry egg production in Surkhandarya province, Uzbekistan," ResearchGate, 2023. [Online]. Available: https://www.researchgate.net/publication/368874780_Economic_efficiency_of_poultry_egg_production_in_Surkhandarya_province_Uzbekistan
[15] J. B. Hardaker, R. B. M. Huirne, J. R. Anderson, and G. Lien, *Coping with Risk in Agriculture*, 2nd ed. Wallingford, U.K.: CABI, 2004.
[16] D. Vose, *Risk Analysis: A Quantitative Guide*, 3rd ed. Chichester, U.K.: Wiley, 2008.
[17] A. Saltelli *et al*., *Global Sensitivity Analysis: The Primer*. Chichester, U.K.: Wiley, 2008.
[18] O. E. Williamson, *The Economic Institutions of Capitalism*. New York, NY, USA: Free Press, 1985.
[19] C. Delgado, M. Rosegrant, H. Steinfeld, S. Ehui, and C. Courbois, *Livestock to 2020: The Next Food Revolution*. IFPRI Food, Agriculture and the Environment Discussion Paper 28, 1999.
[20] C. B. Barrett, "Smallholder market participation: Concepts and evidence from eastern and southern Africa," *Food Policy*, vol. 33, no. 4, pp. 299–317, 2008.
[21] J. E. Stiglitz and A. Weiss, "Credit rationing in markets with imperfect information," *American Economic Review*, vol. 71, no. 3, pp. 393–410, 1981.
[22] ThePoultrySite, "Most Uzbekistan eggs produced in backyard flocks," 2022. [Online]. Available: https://www.thepoultrysite.com/news/2022/08/most-uzbekistan-eggs-produced-in-backyard-flocks
[23] TV BRICS, "Kazakhstan boosts poultry meat production by 58% in five years," 2026. [Online]. Available: https://tvbrics.com/en/news/kazakhstan-increases-poultry-meat-production-by-58-over-five-years/
[24] Tridge, "Kazakhstan's Ministry of Agriculture: Poultry meat production in the first ten months exceeded 360,000 tons," 2025. [Online]. Available: https://www.tridge.com/news/kazakhstans-ministry-of-agriculture-poultry--hyaspz
[25] Meat+Poultry, "New Kazakhstan poultry plant predicted to be largest in the CIS," 2023. [Online]. Available: https://www.meatpoultry.com/articles/30398-new-kazakhstan-poultry-plant-predicted-to-be-largest-in-the-cis