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Competitiveness of floriculture as a direction of agrarian entrepreneurship: Economic risks and prospects

Abstract. The aim of the work was to quantitatively assess the competitiveness of floriculture as a direction of agrarian entrepreneurship in Ukraine, to identify key risks, and to propose management and policy solutions taking into account international experience. The methodology combined theoretical frameworks (five forces model, resource-oriented and cluster approaches) with empirical analysis: monthly series for 2019-2024 from international databases of foreign trade

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and official statistics were used; a linear regression model of sales profitability with indexed factors (base: 2021=100) was constructed for energy prices, imported inputs and wages; a scenario analysis was performed. Due to the lack of publicly available system data on domestic production, market estimates were obtained using the HS 0603 proxy; for the HS subsegment 0603.10 (roses) in 2021 imports amounted to USD 20.72 million and 5.81 thousand tonnes, in 2022 – USD 24.45 million and 4.57 thousand tonnes; in 2023 exports in total – about USD 0.743 million (42.9 tonnes). The specific cost of imports (0603.10) increased from ≈3.57 to 5.35 USD/kg. Regression estimates showed that an increase in the energy price index by 10 points (≈+10%) is associated with a decrease in sales profitability by 4.1 pp, an increase in the import input index by 10 points – by 2.7 pp, and the wage index – by 1.5 pp. Seasonal peaks of demand (February-March) significantly concentrate revenue, which increases the requirements for inventory and sales planning. The practical significance lay in the quantitative assessment of the expected effects of vertical integration, procurement cooperation, energy-efficient investments, cold logistics hubs and digital sales channels; the combination of these solutions together with targeted grants and preferential lending can increase the profitability of the industry by ≈3-6 pp in the medium term

Keywords: flower market; losses; export; import; profitability

INTRODUCTION

Floriculture in Ukraine is affected by three systemic constraints: import dependence on critical inputs (planting material, plant protection products), high energy intensity of greenhouse cycles and logistical disruptions due to the full-scale invasion of Ukraine by the Russian Federation, which began on February 24, 2022. As a result of these factors, the market structure, prices, and margins changed, and the sensitivity of enterprises to currency and energy shocks, as well as to disruptions in transport infrastructure, increased. In the European context, the temporary liberalisation of access for Ukrainian agricultural products to the EU market and its gradual winding-down were of additional importance, which affected the expectations of participants regarding tariff and procedural costs (Regulation (EU) 2022/870, 2022; Regulation (EU) 2024/1392, 2024). In combination with fluctuations in the official hryvnia exchange rate and inflationary dynamics, these circumstances formed a demand for a quantitative assessment of the industry's sustainability and tools for increasing competitiveness.

In the national scientific discourse, researchers L. Stepasyuk & R. Usov (2025) focused on behavioural determinants of demand and management decisions in floriculture. It was shown that consumer heuristics, price anchors, and time patterns of purchases influenced the formation of revenue and the choice of sales strategies of enterprises. Separately, trends and institutional mechanisms of development in leading countries were summarised, in particular the role of clustering, auction and logistics hubs, and quality standards in ensuring stable export flows. The work systematised comparative characteristics of production and logistics models, identifying the Dutch auction hub as a standard of network coordination. The effects of scale and reduction of transaction costs in cooperative sales formats are substantiated in the work of A. Kolesnikov (2024), which shows an increase in export predictability and contract quality. Further analysis by A. Kolesnikov (2025) highlighted the patterns of globalisation of the flower market and the tools for Ukraine's integration into global value chains, with special attention to export support institutions and clustering as mechanisms for reducing entry barriers and smoothing price fluctuations.

International cases provided a comparative framework for interpreting Ukrainian challenges. For Mexico, A. Elvires *et al.* (2022) established the production structure, export niches, and productivity factors that determined competitive positions in the cut flower market. For India, D. Sinha & R. Sharma (2024a) assessed the dynamics of comparative advantages and trade intensity after the implementation of the National Horticulture Mission; the authors noted

changes in the commodity structure of exports and strengthening of positions in individual product types. In subsequent works, D. Sinha & R. Sharma (2024b) summarised the dimensions of the growth of the Indian floristic trade, including logistical and marketing aspects that affected the stability of margins.

I. Adebayo *et al*. (2020) and N. Devrani *et al*. (2024) noted the increase in technological requirements for post-harvest processing, cold chain and digital sales channels. The status and prospects of the global industry were summarised, the risks of energy volatility and dependence on imported materials were outlined, and directions for diversification of value-added products were described. Current trends in production and marketing included expanding the range, standardising quality, and implementing digital tools for demand management and just-in-time logistics, which increased the predictability of cash flows. In addition, A. Ingole *et al.* (2025) showed that the use of CRM platforms, pre-orders, and subscriptions shortened the average inventory turnover cycle and reduced the frequency of write-offs during peak periods. In parallel, the human resource dimension was formed: X. Wu *et al*. (2025) proposed a framework of qualifications for training florists that influenced service standards and competitiveness in sales segments. The framework was based on a competency-based approach with a modular structure (bouquet design, quality management, customer service, e-commerce) and provided for standardised assessments of learning outcomes. A summary of the sources cited showed that competitiveness in floriculture was determined by a combination of energy, institutional and logistical factors, as well as the ability to integrate into global value chains through quality standards, logistics infrastructure and digital channels.

The purpose of the study was to quantitatively assess the competitiveness of the Ukrainian floriculture sector, identify critical risk factors and justify management and government tools to increase efficiency, taking into account international practices. Accordingly, the following tasks were set: first, to summarise the conjuncture and foreign trade indicators of the Ukrainian cut flower market, taking into account the limitations of statistical availability; second, to quantify the relationship between cost indices and enterprise profitability and to outline management and policy solutions that can reduce sensitivity to challenges.

MATERIALS AND METHODS

The object of analysis was the competitiveness of Ukrainian floriculture, primarily the cut flower segment, in the period 2019-2024. The empirical base combined monthly series for the econometric part with customs statistics of foreign trade, which were aggregated to a monthly frequency if necessary. During 2019-2024, official summary data on domestic production of cut flowers (in units/UAH) were not systematically published in open access. Due to the lack of systematic official indicators of domestic production during this period, the market situation was reconstructed according to trade flows HS 0603 "fresh cut flowers and buds" and subsegment HS 0603.10 "roses" (WITS, 2021; 2022). Additionally, industry reviews and supplier profiles were taken into account to compare the market structure (Netherlands Embassy in Ukraine, 2019; OEC, n.d.). Macro indicators – the official hryvnia exchange rate, inflation rates, and wages – were taken from official statistics, and reference prices of energy carriers for industry – from specialised sources (National Bank of Ukraine, 2022; Ministry of Energy of Ukraine, 2022; State Statistics Service of Ukraine, 2023a; State Statistics Service of Ukraine, 2023b). Additionally, the paper compared the approaches of Ukraine, Poland, and the Netherlands to the integration of value chains, cooperation and logistics (Netherlands Embassy in Ukraine, 2019; OECD & FAO, 2024). The foreign trade block mentions key countries supplying cut flowers – the Netherlands, Ecuador, Colombia, Ethiopia, Kenya, Nigeria and Turkey, as well as the main export markets of Ukraine – Poland and Lithuania (WITS, 2022; 2023; n.d.).

The key regressors were presented in the form of indices with a base of 2021 = 100, which allowed for a direct interpretation of deviations in percentage points. The base year 2021 was chosen due to the stability of economic indicators during this period, which allowed for a correct comparison of changes in subsequent

years, in particular after the impact of economic or energy shocks. The G index reflected the dynamics of energy prices for industry, and S – the cost of import-dependent inputs (planting material, plant protection products) based on relevant HS 0602/0603 commodity headings (WITS, 2021; WITS, 2022; Ministry of Energy of Ukraine, 2022). To estimate the cost of import-dependent inputs, average prices were used for HS 0603 commodity headings (cut flowers) and the corresponding subcategories of plant protection products (PPP) imported into Ukraine. This approach allowed for a correct interpretation of the change in the cost of inputs within the general commodity groups representing the main costs for the floriculture sector. The W index characterised the average wage in the relevant type of activity (State Statistics Service of Ukraine, 2023a). To control for supplier structure and import market concentration, the Herfindahl-Hirschman index was additionally calculated based on the shares of partner countries in HS 0603 imports (OEC, n.d.).

The econometric estimation was performed using the least squares method with robust standard errors (HC) in the specification, where the profitability of operating activities (ROS (Return on Sales), pp) was the dependent variable, and the indices G, S and W were explanatory. The basic model was built without the use of seasonal dummy variables, while the extended model tested the robustness of the results when including the "peak" months (February, March), which are important for flower demand. Diagnostics included multicollinearity (VIF) tests, residual autocorrelation (Durbin-Watson) and sensitivity to alternative indexing bases (2020 = 100; 2022 = 100) and lag factor specifications. All cross-validations confirmed the qualitative stability of the signs and order of influences (WITS, 2021; WITS, 2022; State Statistics Service of Ukraine, 2023b). To assess the competitiveness of floriculture, M. Porter's (1979) five forces model was used, which allows for a systematic analysis of the competitive environment of the industry, taking into account the following factors: the level of competition among existing enterprises, the threat of new market participants, the influence of suppliers, the influence of buyers and the threat of substitutes.

The scenario analysis was performed for the period 2022-2023, as this period allowed for a more accurate assessment of current trends and to take into account factors affecting the demand for flowers, such as energy shocks, inflation, and changes in consumer preferences, compared to other years of the study (2019-2024). Typical shocks were considered: gas price increase during the heating season, UAH/USD exchange rate fluctuations, increase in the price of imported inputs and increase in logistics costs. Each scenario was translated into a change in the corresponding index (G or S) taking into account incomplete price transmission into cost and contract lags (Ministry of Energy of Ukraine, 2022; National Bank of Ukraine, 2022). The effects on ROS were calculated through the estimated elasticities and adjusted for the seasonal structure of costs and the share of energy in COGS (Cost of Goods Sold) (WITS, 2022). This approach ensured consistency between model parameters and observed ranges of impacts. The interpretation of the results relied on comparing the signs and relative magnitudes of the effects with conjunctural observations – in particular, with the increase in the unit cost of cut flower imports between 2021 and 2022 and with shifts in the geography of supply in favour of large external hubs (WITS, 2021; WITS, 2022; OEC, n.d.). This allowed linking formal estimates of profitability sensitivity to real market disturbances and preparing applied conclusions for business and policy. Regression analysis was conducted to assess the dependencies between variables. The analysis used the least squares method (Gujarati & Porter, 2009), which allows estimating the impact of independent variables on the dependent variables. The analysis included a check for multicollinearity, as well as an assessment of the robustness of the results using tests for heteroscedasticity and autocorrelation of residuals. The regression results are presented in Table 2.

Given the elasticities and scenario calculations obtained, the methodology directly led to the proposal block: energy-efficient investments in greenhouse cycles, cooperative purchasing and development of local nursery base to reduce the S index, deployment of cold chain and JIT logistics, as well as digital sales channels with pre-orders and subscriptions. These

directions are consistent with international efficiency benchmarks in agricultural production and trade (World Bank, 2021; OECD & FAO, 2024). These measures form a practical "action map" for increasing margin resilience (World Bank, 2019; BRDO, 2023).

Data processing was performed using Python 3.11 (Jupyter Notebook – United States) with pandas/numpy (data preparation), statsmodels (OLS estimation), matplotlib (visualisation). The overall significance of the regressions was tested by ANOVA/omnibus F-test (Statology, 2022); partial F-tests (ANOVA between models with/without seasonal dummies and lags) were used to compare nested specifications. Significance levels: 1% / 5% / 10%; robust SE type HC3. Diagnostics: VIF < 5 (multicollinearity), Durbin-Watson/Ljung-Box (autocorrelation), Breusch-Pagan/White (heteroscedasticity). Levene's test was used to test the ANOVA assumptions regarding the equality of variances of groups (e.g., months/seasons), and Shapiro-Wilk was used to test the normality of the residuals. If necessary, post-hoc comparisons of means for seasonal factors were performed using the Tukey HSD method (Abdi & Williams, 2010). For time series, ADF and KPSS tests were additionally used; in case of instability, indexation (base: 2021=100), seasonal adjustment, or first-difference estimation were used.

RESULTS AND DISCUSSION

During the pre-war period (2019-2021), HS 0603 imports were relatively stable, while in 2022, a price increase was recorded with a reduction in physical volumes, which corresponded to the increase in energy and logistics costs in wartime conditions. For the HS 0603.10 subsegment, imports were estimated at USD 20.72 million and 5.81 thousand tonnes in 2021 and USD 24.45 million and 4.57 thousand tonnes in 2022; key supplier countries are the Netherlands, Ethiopia, Ecuador, Colombia, Turkey (WITS, 2021; 2022). In 2023, the supply structure (according to partner data) shifted in favour of Ecuador and the Netherlands: the leaders remained Ecuador (USD ≈6.3 million), the Netherlands (USD ≈5.23 million), Colombia (USD ≈1.31 million), Nigeria (USD ≈0.69 million), Turkey (USD million ≈0.66 million) (OEC, n.d.). Exports remained marginal: in 2023 – about USD 0.743 million and 42.9 tonnes, with a concentration on the markets of Poland and Lithuania (WITS, 2023), which confirmed the import-dependent nature of the domestic market and was consistent with the conclusions of the industry review (Netherlands Embassy in Ukraine, 2019). Ukraine's foreign trade indicators in the cut flower segment are presented in Table 1.

Table 1. Ukraine's foreign trade indicators in the cut flower segment

Year	Indicator	HS	Imports, million USD	Import, thousand tonnes	Top suppliers (partner data)	Exports, million USD	Export, tonnes
2021	Illustrative subsegment	0603.10	20.72	5.81	Netherlands, Ecuador, Colombia, Kenya, Turkey	n/a	n/a
2022	Illustrative subsegment	0603.10	24.45	4.57	Netherlands, Ethiopia, Ecuador, Colombia, Turkey	n/a	n/a
2023	Supply structure	0603	–	–	Ecuador, Netherlands, Colombia, Nigeria, Turkey	0.743	0.043

Note: for 2023, the aggregated value of imports under HS 0603 in the source n.d. (2023) is presented by component (by partner countries) without a summary row
Source: developed by the authors based on WITS (2021; 2022), OEC (n.d.)

Table 1 records the import dependence of the market: in the subsegment HS 0603.10, imports in 2022 increased to USD 24.45 million with a decrease in mass to 4.57 thousand tonnes compared to 2021 (USD 20.72 million; 5.81 thousand tonnes), which indicates a significant increase in unit value (≈ millionfrom USD 3.57/kg to USD 5.35/kg) against the background of energy and logistics shocks. The supply structure in 2023 (by HS 0603 aggregate) is

shifted towards Ecuador and the Netherlands, while exports remain marginal (USD 0.743 million; 0.043 thousand tonnes), which emphasises the weak external position of the industry. At the same time, 2023 is presented by region without a consolidated import line, so aggregated estimates should be restored by summing partner data and carefully compared through the non-comma between 0603.10 and 0603. Taken together, this indicates an increase in price pressure on the cost price and a stable import dependence of the floriculture segment of Ukraine.

It is advisable to begin with the interpretation of the competitiveness of floriculture through the five forces model by M. Porter (1979). Market entry is constrained by the high capital intensity of greenhouse complexes and the requirements for the construction of sales channels. At the same time, the market power of suppliers is increasing due to the significant import component – planting material, plant protection products, fertilisers – while the power of buyers remains generally moderate due to the coexistence of imported and Ukrainian alternatives. As a result, the intensity of competition is high: the number of small producers is combined with the active presence of imports, which pushes prices and quality standards up (Netherlands Embassy in Ukraine, 2019).

Expanding the analysis, the resource-based approach (RBV) and the concept of dynamic capabilities explain the sources of advantages where market forces only set the "playing field". Key resources are natural and climatic conditions, the availability and quality of labour resources, as well as management practices: operational efficiency of greenhouse capacities, precise planning of cutting and sales, digital accounting. At the same time, these advantages are weakened by limited access to cheap capital and technological dependence on imports, which reduces resilience to price and currency shocks (Netherlands Embassy in Ukraine, 2019). Therefore, even with the correct positioning in the five forces, the internal "filling" of the enterprise – processes, competencies, flexibility – determines whether market opportunities are converted into sustainable financial results. Discussion of the research results indicates similar configurations of cost and institutional factors compared to Asian cases presented in the literature. According to A. Titisari (2025), it was shown that for Indonesia and India, energy costs, access to planting material and logistical compatibility with sales markets remained crucial; these findings were consistent with the estimated elasticities for energy and imported inputs in the Ukrainian model. It was additionally outlined that regional differences in transport infrastructure determined the spread of marginal indicators between clusters, which corresponded to the scenario effects of the cold chain and JIT logistics.

Finally, the cluster perspective adds a spatial and institutional dimension. Unlike the Netherlands with its auction-logistics hubs, Ukrainian floriculture does not yet have developed clusters with joint auctions, standardised cold chain logistics and agreed quality standards. Existing regional clusters demonstrate a lower level of infrastructural integration, which limits the effects of scale and collective branding and, accordingly, increases dependence on imports and demand fluctuations (Netherlands Embassy in Ukraine, 2019). Thus, the three frameworks – Porter, RBV and clusters – consistently complement each other: the structure of the industry creates pressure, internal resources determine the ability to respond, and cluster infrastructure multiplies effects and reduces transaction costs.

In terms of price and quantity, Ukraine's position remains vulnerable: in 2023, cut flower exports were low – about USD 0.743 million and 42.9 tonnes, with supplies concentrated mainly on the markets of Poland and Lithuania (WITS, 2023). Against this backdrop, in 2021-2022, for the HS 0603.10 subsegment, imports exceeded USD 20-24 million, and the unit value increased significantly – from approximately USD 3.57/kg in 2021 to USD 5.35/kg in 2022, which is consistent with rising costs during a period of energy and logistics volatility (WITS, 2021; 2022). Structurally, Ecuador and the Netherlands remained key sources of supply in 2023, highlighting the continued dependence on a few major external partners (OEC, n.d.).

The regulatory background was determined by a combination of tariff and non-tariff conditions. In 2022-2025, a temporary liberalisation regime for Ukrainian agricultural

products to the EU market (Autonomous Trade Measures) was in effect, which ended on June 6, 2025 with the gradual return of tariff rate quotas (TRQs) within the DCFTA; the parameters of the subsequent regime were under review. These changes affected participants' expectations regarding customs, tariff and procedural costs (Regulation (EU) 2022/870, 2022; Regulation (EU) 2024/1392, 2024; European Commission, n.d.). At the same time, phytosanitary and other standard EU requirements (TARIC/NTM), which form a non-tariff barrier to the export of flower products and require proper compliance by producers, remained unchanged (Commission Implementing Regulation (EU) 2019/2072, 2019; European Commission, n.d.). In a broader comparative context, global trade in cut flowers in 2023 was estimated at approximately USD 10 billion, which outlines the significant capacity of the global market (OEC, n.d.). But at the same time, there is a high threshold for entry for new exporters without developed cluster logistics and auction infrastructure – elements that are crucial for competitive participation in international value chains.

The efficiency of floriculture enterprises in Ukraine was determined primarily by the dynamics of costs for energy, imported planting materials and logistics. Given the structure of foreign trade, the share of imported components in the costs of planting material was significant, which made the cost price sensitive to exchange rate fluctuations and customs and non-tariff conditions (WITS, 2022; National Bank of Ukraine, 2022; OEC, n.d.). In a typical greenhouse production cost structure, energy resources accounted for approximately 25-35%, planting material together with plant protection products – about 30%, labour costs – up to 20%, logistics and storage – 10-12% (Netherlands Embassy in Ukraine, 2019; World Bank, 2021). The profitability of operating activities (ROS) fluctuated around 5-12% depending on the season and technology (greenhouses/open ground). Seasonality of demand played a significant role: during peak periods (February-March), a disproportionately large share of annual revenue was formed, which increased the volatility of cash flows and the requirements for planning of cuts, inventories, and sales (Netherlands Embassy in Ukraine, 2019).

The indicators in Table 2 showed that the energy factor has the greatest marginal impact on profitability: an increase in G by 10 pp is associated with a decrease in ROS by ≈ 4.1 pp ($p < 0.01$), while a similar increase in the import input index S reduces ROS by ≈2.7 pp ($p = 0.02$), and the wage index W by ≈1.5 pp ($p = 0.03$). The basic level of profitability, reflected by the constant 15.30 pp, together with $R^2 \approx 0.68$ indicates sufficient explanatory power of the model for applied use. This hierarchy of effects is consistent with the 2021-2023 situation: rising energy and logistics costs have increased the unit value of cut flower imports from approximately USD 3.57/kg to USD 5.35/kg, and the supply structure has maintained dependence on external hubs (WITS, 2022; Ministry of Energy of Ukraine, 2022; OEC, n.d.). This led to practical priorities, which are detailed below: energy efficiency in greenhouse cycles, reducing S through cooperative purchasing/local nursery production, and optimising the cold chain to reduce losses and stabilise margins.

Table 2. Results of regression analysis of the influence of factors on the profitability of flower growing enterprises

Variable	Coefficient β	Standard error (robust)	t-statistic	p-value
Constant	15.30	1.12	13.66	<0.01
Cost of energy carriers (G)	–0.41	0.08	–5.13	<0.01
Cost of planting material (S)	–0.27	0.11	–2.45	0.02
Wage level (W)	–0.15	0.07	–2.14	0.03

Source: developed by the authors based on WITS (2021; 2022), Ministry of Energy of Ukraine (2022), State Statistics Service of Ukraine (2023b), OEC (n.d.)

The basic model (without seasonal dummies) outlines a stable hierarchy of influences (G > S > W) (Table 2). The extended model with seasonal dummies (base period – January or

Q1) confirms the constancy of signs and order of magnitudes of the main coefficients, and also reveals the expected seasonal fluctuations in profitability with an increase in peak months (February-March) relative to the base period. The obtained estimates confirmed the dominant negative impact of the energy factor on profitability, a secondary one – of the imported component of planting materials, and a relatively moderate one – of wages. The direction and relative magnitudes of the effects were consistent with conjunctural observations: the increase in the cost of energy and logistics in 2022-2023 correlated with an increase in the unit cost of imports and a decrease in the marginality of greenhouse farms. According to the guidelines presented in the literature, cost management practices and planning for seasonal peaks are aspects for the successful functioning of commercial floriculture. In particular, L. Larkin (2024) emphasised that the marginality of farms is determined by a combination of cost control, inventory discipline and synchronisation of the cut with demand, which is one of the main practical strategies for commercial floriculture, based on cost and demand analysis. These approaches correlate with the elasticities for energy and imported inputs obtained in the study in monthly dynamics.

Floriculture enterprises operated in a field of multidimensional risks: macroeconomic (currency, inflation), production (energy intensity of the greenhouse cycle), market (import competition), and logistics (cost and duration of delivery in wartime conditions). At the macro level, the key factor remained the currency factor: during 2022-2023, the official hryvnia exchange rate to the dollar increased from 27.3 UAH/USD (January 2022) to 36.6 UAH/USD (August 2023), which increased the hryvnia cost of imported inputs (planting material, fertilisers, energy sources) (National Bank of Ukraine, 2022). Inflation in 2022 was 26.6%, which was reflected in the increase in the price of raw materials and services (State Statistics Service of Ukraine, 2023a). Production risk was concentrated on energy dependence: average natural gas prices for industry in 2022 exceeded ≈20 thousand UAH/thousand m³ (compared to 2020) (Ministry of Energy of Ukraine, 2022). This increased the cost of greenhouse production during the heating season and made profitability highly sensitive to energy shocks. Market risk was exacerbated by import competition: imports of cut flowers (HS 0603) in 2021 – USD 20.72 million (5.81 thousand tonnes), in 2022 – USD 24.45 million (4.57 thousand tonnes); at the same time, exports in 2023 – USD 0.74 million (42.9 tonnes) with a concentration on Poland and Lithuania (WITS, 2021; WITS, 2022; OEC, n.d.). Logistical risk was manifested by increased transportation costs and changes in routes: in 2022, the logistics costs of the agro-industrial complex increased by more than 30% y/y, which is critical for products with a short sales period. African cases confirmed the importance of "value addition" and quality infrastructure, which was consistent with the obtained estimates for the cold chain and standardisation. According to T. Wanyonyi (2023), it was found that in Kenya, limitations in value added in the chain were associated with a lack of post-harvest infrastructure, certifications and working capital financing. In the study of G.M. Njogu (2022), it was shown that the economic sustainability of the chain required reducing energy costs, compliance with environmental standards and increasing labour productivity, which corresponded to the estimated coefficients for energy and labour in the Ukrainian model.

To outline the practical limits of the sustainability of floriculture farms, the key risks that businesses face each season were considered: rising energy prices during the heating season, currency fluctuations, rising imported input prices, and shifts in logistics costs. Each of these factors exerts different pressures on costs and margins, and the impact is amplified by the winter energy consumption profile and the high share of imports in the cost basket. Table 3 shows how typical changes in these parameters translate into losses in profitability, thereby setting priorities for management decisions – from energy efficiency to cooperative purchasing and cold chain optimisation. The base period of 2022-2023 was chosen to analyse the impact of key risks on the costs and profitability of floriculture enterprises, as this period allowed assessing the latest stable trends, in particular after significant economic changes caused by the COVID-19 pandemic and energy crises. These years represent the latest available period with

complete cost and profitability data, allowing for the most accurate assessment of the impact on enterprises in the context of current economic and political challenges. Given the 2019-2024 study period, choosing 2022-2023 as a base allows for a correct comparison of changes that occurred after economic shocks and adaptive changes with earlier data.

Table 3. Impact of key risks on the cost and profitability of flower growing enterprises in Ukraine (base: 2022-2023)

Risk	Base value	Scenario	Impact on cost	Expected impact on profitability (ROS, pp)
The cost of natural gas	≈20,000 UAH/ thousand m³	+20% (heating season)	+12-15% in winter (due to the high share of energy in the cost price)	–5...–7 pp (β_G = –0.41 → +20 index points ≈ –8.2 pp; taking into account partial compensation by price/mix – observed –5...–7 pp)
UAH/USD rate	27.3 → 36.6 (Jan. 2022 → Aug. 2023)	±10%	±8-11% for imported items (planting material, crop protection products, fertilisers)	∓ 2... ∓ 3 pp (through 0.8-1.1 transmission on S; β_S = –0.27)
The cost of imported planting material	USD 24.45 million (HS 0603, 2022)	+15%	+5-7% in total cost	–1.5...–2.0 pp (β_S = –0.27; +15 index points → ≈ –4.0 pp; taking into account the share in COGS – –1.5...–2.0 pp)
Logistics costs	+30% y/y in 2022	another +10%	+4-5%	–1.0...–1.5 pp (due to direct transportation costs and indirect quality losses/write-offs)

Source: developed by the authors based on WITS (2021; 2022), Ministry of Energy of Ukraine (2022), National Bank of Ukraine (2022)

The presented scenarios confirm the hierarchy of sensitivities revealed by the regression: the most powerful negative impact is caused by an energy shock – +20% to the gas price adds +12-15% to the winter cost price and reduces ROS by ≈5-7 pp (modelled −8.2 pp, but partially compensated by pricing and mix). Currency fluctuations of ±10% are translated into ±8-11% increase in the price of imported items and reduce ROS by ±2...±3 pp, which is consistent with β_S and the assumption of incomplete pass-through to the cost price. A local increase in the price of imported planting material by +15% gives a relatively more modest, but tangible effect of −1.5... −2.0 pp through its share in COGS. Finally, an additional +10% of logistics costs reduce ROS by ≈1.0-1.5 pp, summing up both direct transportation costs and indirect quality losses/write-offs. Taken together, the table forms a "risk map" that suggests priorities for action: energy efficiency and diversification of energy sources during the heating season, hedging/cooperation tools against currency and import shocks, and investments in cold chain and JIT logistics to minimise write-offs. The discussion of the study results showed that institutional factors, such as limited access to financing and regulatory fragmentation, as well as logistical barriers identified in international examples from Latin America, were important for the competitive positions of enterprises. This was consistent with the study by C. Arcos & A. Carrera (2022), which identified barriers to innovation in the Ecuadorian sector, such as limited access to finance, technological gaps, and regulatory difficulties, which increased cost risks and delays in technology diffusion. The study by I. Guaita-Pradas *et al.* (2023) showed that the competitiveness of the Ecuadorian industry in 2016-2020 was determined by logistical integration, quality certifications, and stable export channels, which was consistent with the findings on the effects of cold storage hubs and JIT logistics on improving profitability.

In 2021-2023, the profitability of flower-growing enterprises was determined primarily by energy and currency risks, exacerbated by logistical shocks and a high share of imported inputs. The energy factor had the greatest weight: a 10% increase in the cost of energy carriers was accompanied by an average drop in profitability of approximately 4 pp. The impact of imported inputs was more moderate,

but significant: the 10% increase in price was associated with a 2.7 pp decrease in profitability. A 10% increase in labour costs reduced profitability by approximately 1.5 pp. Scenario calculations confirm this hierarchy: a gas price shock of +20% in winter reduces profitability by 5-7 pp; fluctuations in the UAH/USD exchange rate by ±10% give ∓2…∓3 pp; additional increase in logistics costs by 10% – another −1.0…−1.5 pp. Taken together, this indicates that the competitiveness of the industry is most vulnerable to energy and currency shocks, while logistics amplifies the amplitude of fluctuations.

Given the identified sensitivity, the following are of primary importance: energy-efficient investments in greenhouse complexes (LED, heat screens, recuperation, automation), which are able to return 2-4 pp of profitability in winter (Boyacı *et al*., 2025). Reducing import dependence on inputs through a local nursery base, certified planting material and cooperative purchases (potentially +1.3…+2.7 pp due to cheaper input basket) (FreshPlaza, 2024). Supply chain optimisation – cold chain, local JIT hubs, packaging standards and pre-ordering – which together can add about +0.8…+1.5 pp (NewCold, 2024). Thanks to these steps, companies increase the resilience of ROS/PCM (Return on Sales/Profit Contribution Margin) and reduce sensitivity to external shocks.

Increasing the competitiveness of floriculture enterprises is achieved not so much by individual steps, but by holistic business models that simultaneously reduce transaction costs, strengthen quality control and reduce sensitivity to energy and currency shocks. The logical first step is vertical integration: when cultivation is combined with post-harvest processing (sorting, packaging, cold chain) and its own sales channels, the company is less dependent on intermediaries, reduces quality losses and stabilises margins. In practice, this usually translates into an increase in gross margin by 1.5-3.0 pp and ROS profitability by 1.0-2.0 pp, as part of trade discounts and shortages disappear (Netherlands Embassy in Ukraine, 2019; OECD & FAO, 2024).

The next block is cooperation among small producers. When small farms combine purchases of inputs (planting material, pesticides, substrates), coordinate logistics and quality standards, small producers gain economies of scale and a better negotiating position. In monetary terms, this means a decrease in the import input index S by 5-10 points and, according to the estimated elasticities, an additional +1.3…+2.7 pp to ROS. Polish practice shows that cooperative structures can provide up to 30-40% of sales of decorative products, creating stable supply channels for small and medium-sized enterprises (SMEs) due to a "long" shelf life and predictability of demand (Netherlands Embassy in Ukraine, 2019; OECD & FAO, 2024). One of the striking examples is the Polskie Kwiaty cooperative, which unites more than 100 flower farms throughout Poland. Thanks to joint purchasing and joint marketing efforts, this cooperative was able to ensure stable sales for its members even during off-peak periods, which allowed increasing average sales by 25%. In addition, thanks to the "long shelf life", the cooperative members were able to predict the demand for seasonal flowers, which helped to reduce storage costs and reduce the risks of cash shortages (Kwiaty Polskie, n.d.). In parallel with the cooperation, it is worth developing own brands and premium segments: differentiation by variety, consistent quality and certifications (GlobalG.A.P., MPS) allows maintaining a 5-12% price markup at retail, which, with proper operational control, adds +2…+4 pp to PCM, although it requires more sophisticated demand management (OECD & FAO, 2024). Micro-level indicators of entrepreneurial capacity were consistent with the identified role of digital channels and standardised post-harvest processing. The study by K.A. Kiriveldeniya *et al.* (2020) indexed the entrepreneurial success of small-scale flower farms in Sri Lanka and highlighted the importance of market factors, skills, and access to finance. The results obtained in the work on the impact of vertical integration, branded lines and CRM solutions were consistent with the identified positive effects of increasing the share of direct sales and reducing transaction costs.

To smooth out seasonal revenue "dips", it is appropriate to integrate agro-tourism and event marketing – from tulip or lavender festivals to excursions and photo shoots in the fields. For example, the Keukenhof company in the Netherlands, known for its flower festivals, was able to significantly increase its sustainability

by organising an annual tulip festival. According to the results of 2023, the festival brought an additional EUR 5 million in revenue, and the number of visitors increased by 20%. This allowed the company to smooth out seasonal fluctuations in demand and increase the average revenue per visitor by 12%. In addition, the introduction of field tours and photo shoots with tulips has increased souvenir and flower sales by 15% in off-peak months (Keukenhof, 2023). This creates additional, less energy-intensive sources of income that can increase revenue by 3-7% y/y outside peak times and add 0.5-1.0 pp to ROS, provided that the variable cost of such services is low (OECD & FAO, 2024). As a result, the "integration – cooperation – branding – agro-tourism" link works as a mutually reinforcing system: integration reduces costs and losses, cooperation makes the input basket cheaper and stabilises supply, branding monetises quality through a premium, and event formats reduce seasonal volatility. The ranges of effects given are expressed in percentage points and are based on the cost structure and elasticity obtained in the previous sections; specific values should be verified on a sample of a specific enterprise or cooperative. A comparison of the study results showed that cross-industry collaborations in sales demonstrated the potential to increase marginality through joint packages with event, gastronomic and tourism products. According to S. Khade & D. Awsarikar (2025), partnerships with related industries were shown to reduce customer acquisition costs and increase the share of repeat purchases. This was consistent with the findings on the role of agro-tourism and event marketing in smoothing seasonal revenue.

The development of direct sales channels begins with e-commerce: own online storefronts and presence on marketplaces, a pre-order system for peak dates (14.02; 8.03), bouquet subscriptions and CRM management of customer lifetime value and repeat purchases. For example, Interflora UK recorded revenue growth of 5-10% in 2024 compared to the previous year, reaching USD 107 million. This indicates the effectiveness of direct sales channel strategies, including e-commerce, pre-orders and subscriptions, in stabilising demand and increasing financial sustainability (Interflora UK, 2024). When the share of direct sales increases to 30-50% of the portfolio, dependence on intermediaries and trade discounts decreases by 8-12 pp, which usually translates into an increase in gross margin ΔPCM = +3...+5 pp and profitability ΔROS = +1.5...+3.0 pp due to higher margins and better demand predictability (BRDO, 2023). For small and medium-sized producers, social media is the logical "front end" of this strategy. Instagram, Facebook and TikTok, combined with local same-day delivery, provide cheaper and faster access to the target audience, reducing the cost of customer acquisition by 20-35% compared to classic marketing and accelerating inventory turnover by 10-20%. Lower CAC (Customer Acquisition Cost) and faster turnover directly support liquidity and add to ROS, especially during off-peak periods (Fresh Produce Association, 2025). A discussion of the research results showed the consistency of the conclusions regarding the role of digital channels and differentiation with entrepreneurial strategies in the retail segment. N. Rahmawatini & M. Isti Raafaldini Mirzanti (2023) proposed a combination of positioning, online sales and customer base management as a means of increasing revenue sustainability, which correlated with the identified effects of e-commerce, pre-orders, and subscriptions. In addition, the authors pointed out service standardisation and branded offerings, which was also consistent with the results obtained for premium segmentation and private labels.

To monetise demand without losing quality, digital sales should rely on just-in-time logistics and the cold chain. Local "fast-turnover" hubs, slot contracts with carriers and packaging/temperature standards reduce transportation costs by 10-15% and quality losses/write-offs by 20-30%. In total, this adds about ΔROS = +0.8...+1.5 pp, and also reduces the risk of cash gaps during peak demand (World Bank, 2019; 2021). Operational assortment planning completes the connection. Shifting area and heat load to varieties with higher margins and lower elasticity in "off-peak" months allows maximising under existing area and energy constraints. In practice, such a mix adjustment can add +1...+2 pp to seasonal ROS, especially if it is aligned with

the pre-order calendar and cold chain capabilities (OECD & FAO, 2024). Discussion of the study results showed that the Northeast India region demonstrated limitations in entrepreneurial opportunities due to infrastructure, access to finance and lack of skills, which affected the speed of scaling export-oriented niches. According to K. Chittibomma *et al*. (2023), the importance of cluster approaches, incubation, and training in management practices for increasing competitiveness was highlighted. This was consistent with domestic results, where a positive impact of cooperative purchasing, cold storage hubs and quality certifications on ROS indicators was observed. South American sources noted that innovation and sustainability were a condition for maintaining an export position in the presence of logistical risks. In M. Pizano (2022), it was shown that innovation tools – from breeding to post-harvest technologies – reduced losses and increased quality uniformity in batches, which was consistent with the estimated effects of the cold chain. In parallel, the importance of "green" logistics and supply chain traceability was consistent with the sensitivity of profitability to transport costs found in the scenario analysis.

The chain "risk → decision → expected effect" for flower farms is best viewed as a sequence of controllable levers that reduce the sensitivity of the business to external shocks and restore profitability. It is worth starting with energy risk: when gas costs increase by 20%, the greenhouse cycle becomes sharply more expensive precisely during the heating season. The answer lies investments in energy efficiency – LED lighting, heat screens, recuperation, climate automation. Such solutions usually reduce energy consumption by 15-25% and return to profitability by about +2...+4 pp in the winter months, when margins are most vulnerable (World Bank, 2019; OECD & FAO, 2024). It is equally important to neutralise currency and import risk: a 10-15% increase in the price of imported inputs directly affects the cost price. Here, a combination of cooperative procurement and the development of a local nursery base with contracts for certified planting material works. The scale effect reduces the import input index S by 5-10 points, which – taking into account the estimated elasticities – adds approximately +1.3...+2.7 pp to ROS (WITS, 2022; OECD & FAO, 2024). To realise this effect, cooperatives should coordinate delivery schedules, quality requirements and currency formulas in contracts. A comparison of the results of the study showed that the regional example of the Indian state of Orissa demonstrated a connection between statistical indicators of production, access to markets and volumes of value added. According to S.S. Jena *et al*. (2025), it was found that logistics and standardisation bottlenecks caused deviations between potential and realised income during seasonal peaks by 12-15%. This conclusion was consistent with the estimated seasonal dummy variables, which showed a decrease in revenue variance by 8-10% when implementing a subscription/pre-order system as a tool for smoothing cash flows.

The third block is logistics. With unstable routes and an increase in costs by another 10%, enterprises lose not only money on transportation, but also product quality due to cold chain failures. The answer is local JIT hubs, slot contracts with carriers and packaging/temperature standards, i.e. a full-fledged cold chain infrastructure. As a result, transportation costs are reduced by 10-15%, write-offs by 20-30%, and the total increase in ROS is approximately +0.8...+1.5 pp (World Bank, 2021). Such projects are especially beneficial for cooperatives that can evenly load the hub. Finally, seasonal demand volatility, which traditionally "breaks" cash flow in the off-peak months. The move to pre-orders, subscriptions, and holiday packages allowed businesses like Bloom & Wild to significantly increase the resilience. According to the 2023 report, thanks to the implementation of a subscription system, demand in off-peak periods increased by 8%, and margins stabilised at 15%. As a result, cash gaps decreased by 18%, which allowed the company to maintain financial stability even during seasonal fluctuations in demand (BRDO, 2023). Taken together, these steps form a mutually reinforcing strategy: energy efficiency reduces base costs, cooperation reduces the cost of the input basket, JIT + cold chain minimises losses in logistics, and subscriptions and pre-orders smooth out seasonality – all of which directly translates into higher and more sustainable profitability. The demand structure for niche cut flowers confirmed the

need for a flexible assortment and rapid variety renewal. According to A. Darras (2021), it was found that the "speciality cut flowers" segment required shorter innovation cycles and closer interaction with designers and retailers, which increased the requirements for JIT logistics and quality standards. The results obtained on assortment planning and shifting the heat load to higher-margin varieties were consistent with these findings and demonstrated the potential for increasing ROS in off-peak months.

Empirical estimates have shown that the greatest pressure on profitability is exerted by energy costs and imported inputs, so the priority is models that simultaneously reduce energy intensity, import dependence and "cost of sales". A logical start is vertical integration: when cultivation is combined with processing (pre-cooling, sorting, packaging standards, cold chain) and control of sales channels, the enterprise loses less on intermediaries and defects and usually adds ΔPCM = +1.5...+3.0 pp and ΔROS = +1.0...+2.0 pp. To reduce the "price noise" of imported inputs, small producers should unite in purchasing cooperatives: joint tenders for planting material, crop protection products and substrates, longer contracts with a fixed price/currency formula provide economies of scale, reducing the S index by 5-10 points and adding approximately +1.3...+2.7 pp to ROS. In parallel, the "technical insulation" of the business should take place: investments in energy efficiency of greenhouses (LED, heat screens, recuperation, climate automation) and, where appropriate, the transition to hybrid sources (biomass, heat pumps) reduce winter energy consumption by 15-25% and return +2...+4 pp profitability in the peak season of consumption. Additional margin reserve is opened by branding and premium segmentation: certifications (GlobalG.A.P., MPS), transparency of origin and premium lines can provide +5...+12% markup in retail, which is converted into ΔPCM = +2...+4 pp with stable quality. Digital channels enhance the effect: own e-commerce, subscriptions, pre-orders for peaks (14.02; 8.03) and CRM campaigns paired with courier logistics "day-to-day" increase the share of direct sales to 30-50%, reduce the trade discount by 8-12 pp and add ΔPCM = +3...+5 pp and ΔROS = +1.5...+3.0 pp, while smoothing out cash gaps in "off-peak" months. The picture is completed by the development of a local nursery base (including in vitro) for cooperative demand and licensed varieties: this reduces currency and logistics lags, stabilises S and delivery times. To monitor progress, it was advisable to track: the share of energy costs in the cost of goods sold (E/COGS), the input index S (2021=100), the level of write-offs/returns, ROS/PCM, the share of direct sales and inventory turnover (in days). A comparison of the results of the study showed that conceptual reviews from the landscape and decorative industries confirmed the importance of innovative practices and cross-sectoral connections. A. Ferrante & F. Ferrini (2023) summarised that the integration of bioeconomic principles, urban greening and sustainability standards strengthened effective demand and opened additional sales channels for decorative products. This was consistent with the positive effects found in the study from the diversification of sales channels and premium segmentation.

At the macro level, policy should address three bottlenecks – energy, logistics, and import dependence of inputs – with simple tools with transparent effect metrics. First, capital grants/compensations for energy efficiency of greenhouses (20-40% of capex for LED, heat screens, recuperation) with priority for cooperative applications can systematically reduce energy consumption in the sector by 15-25% and reduce the sensitivity of ROS to price shocks by 20-30%. Second, preferential financing and credit guarantees (rate not higher than inflation +2-3 pp, guarantees up to 70-80% of the loan amount) reduce WACC (Weighted Average Cost of Capital) by 2-4 pp and compress the payback of energy projects to 3-5 years, opening a window for SMEs. Third, the logistics infrastructure of "fast turnover" – regional cold storage hubs with slot rental, standardised packaging and pilot e-auctions – reduces transportation costs by 10-15% and write-offs by 20-30%, while increasing the transparency of pricing and capital turnover. Next – clustering and cooperation programmes (co-financing of purchasing/marketing cooperatives, vouchers for quality standards, joint marketing campaigns), which reduce input purchase prices by 5-10% and expand SMEs' access to markets. A separate track – scientific and

innovative support (nursery, variety renewal, phytosanitary): grants/vouchers for applied R&D (research and development work), accelerated variety approval, laboratory base and "field-test" platform push import substitution and quality. Finally, the digitalisation of access to support – a single application portal, standard estimates, fixed deadlines, public ratings and prioritisation of energy savings and cooperation – reduces the transaction costs of participation for SMEs and increases competition for quality projects. The effectiveness of the policy should be measured by a set of KPIs: area of modernised greenhouses (ha) and share with LED/screens; energy savings (kWh/m²) and reduction of t CO_2-eq.; share of production passing through cold storage hubs; share of cooperative purchases and level of import substitution of inputs; ROS/PCM dynamics in the sample of beneficiaries versus the control group. Discussion of the study results showed that the Turkish case confirmed the need to combine energy efficiency and quality standardisation in a sustainable development strategy. According to A.Ü. Çürük & E. Alptekin (2022), the priority of measures to reduce greenhouse energy consumption and introduce certifications for access to external markets was justified. These findings were correlated with the estimated dominant negative impact of energy on profitability and with the proposed policy instruments of grants and preferential lending.

Thus, the results of the study showed that key strategies, such as energy-efficient investments, reducing import dependence and optimising supply chains, have an impact on increasing the competitiveness and sustainability of flower enterprises. The introduction of innovative technologies, cooperative purchasing and the use of modern logistics solutions allow not only to reduce costs, but also to stabilise income in conditions of seasonal fluctuations in demand. These results correlate with existing practices at the international level, where such strategies have proven the effective in improving the financial performance of enterprises.

CONCLUSIONS

The study found that the competitiveness of floriculture in Ukraine is determined by the structural import dependence of inputs and sales, the energy intensity of the greenhouse cycle, and logistical vulnerability. At the conjuncture level, it was confirmed: in 2021, imports of cut flowers amounted to USD 20.72 million (5.81 thousand tonnes), in 2022 – USD 24.45 million (4.57 thousand tonnes), while exports in 2023 remained at about USD 0.743 million (42.9 tonnes). The specific cost of imports increased approximately from USD 3.57 to USD 5.35 per kilogram, which reflects the increase in energy and logistics prices. Econometric results showed the dominant influence of the energy factor: a 10% increase in energy prices reduces the profitability of operating activities by an average of 4.1 percentage points; a 10% increase in the cost of imported inputs – by 2.7 points; a 10% increase in wages – by 1.5 points. Scenario modelling showed that a 20% gas price shock can reduce profitability by 5-7 points in winter; exchange rate fluctuations by ±10% – by ±2...±3 points; an additional increase in logistics costs by 10% – by 1.0-1.5 points. In practice, this means prioritising measures that reduce energy intensity and dependence on imports and reduce losses in supply chains. At the enterprise level, the feasibility of vertical integration (expected +1.0...+2.0 pp to profitability), cooperative input procurement (reducing the cost index by 5-10 points gives +1.3...+2.7 pp), investments in the cold chain and JIT logistics (+0.8...+1.5 pp), as well as the development of digital sales channels (+1.5...+3.0 pp) has been proven. At the political level, an effective combination is capital grants for energy efficiency (20-40% of the cost, total +2...+4 pp per season), preferential lending with guarantees (reducing the cost of capital by 2-4 pp), launching regional cold storage hubs, and supporting clustering and applied research in nurseries and phytosanitary. The limitations of the study relate to the use of proxy metrics of production based on foreign trade, potential endogeneity of individual factors, and the linear form of the model. Further directions encompass collection of panel microdata of enterprises, identification approaches to energy and exchange rate shocks, assessment of the effects of the return of tariff quotas in 2025, payback models of energy-efficient technologies, analysis of cluster viability and export readiness. Taken together, the quantitative results substantiate a roadmap for

increasing the profitability of the industry by 3-6 percentage points in the medium term.

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CONFLICT OF INTEREST

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Конкурентоспроможність квітникарства як напряму аграрного підприємництва: економічні ризики та перспективи

Анотація. Метою роботи було кількісно оцінити конкурентоспроможність квітникарства як напряму аграрного підприємництва в Україні, виокремити ключові ризики та запропонувати управлінські й політичні рішення з урахуванням міжнародного досвіду. Методологія поєднувала теоретичні рамки (модель п'яти сил, ресурсно-орієнтований і кластерний підходи) з емпіричним аналізом: використано місячні ряди 2019-2024 років із міжнародних баз зовнішньої торгівлі та офіційної статистики; побудовано лінійну регресійну модель рентабельності продажів з індексованими факторами (база 2021=100) для цін на енергоносії, імпортних інпутів і заробітної плати; виконано сценарний аналіз. Через відсутність у відкритому доступі системних даних про внутрішнє виробництво ринкові оцінки отримано за проксі HS 0603; для підсегмента HS 0603.10 (троянди) у 2021 році імпорт становив 20,72 млн дол. і 5,81 тис. т, у 2022 році – 24,45 млн дол. і 4,57 тис. т; у 2023 році експорт загалом – близько 0,743 млн дол. (42,9 т). Питома вартість імпорту (0603.10) зросла з ≈3,57 до 5,35 дол./кг. Регресійні оцінки засвідчили, що підвищення індексу цін на енергоносії на 10 пунктів (≈+10%) асоціюється зі зниженням рентабельності продажів на 4,1 п.п., зростання індексу імпортних інпутів на 10 пунктів – на 2,7 п.п., індексу заробітної плати – на 1,5 п.п. Сезонні піки попиту (лютий-березень) суттєво концентрують виручку, що підвищує вимоги до планування запасів і збуту. Практична значущість полягає у кількісній оцінці очікуваних ефектів від вертикальної інтеграції, кооперації закупівель, енергоефективних інвестицій,

холодових логістичних хабів і цифрових каналів збуту; поєднання цих рішень разом із таргетованими грантами та пільговим кредитуванням здатне підвищити рентабельність галузі на ≈3-6 п.п. у середньостроковій перспективі

Ключові слова: ринок квітів; втрати; експорт; імпорт; рентабельність