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## Transparency and traceability as strategic drivers of international agrarian marketing

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**Abstract.** The transformation of global agrifood markets under the influence of sustainability regulations, digitalisation, and ESG-oriented investment standards has fundamentally altered the competitive landscape of international agrarian trade. In this context, transparency and traceability systems are no longer limited to compliance functions related to food safety and regulatory control. Instead, they increasingly operate as strategic instruments shaping market access, brand positioning, and trust formation in cross-border agrifood exchanges.



The rapid institutionalization of sustainability requirements in international trade has fundamentally reshaped the competitive architecture of global agrifood markets. Under the European Green Deal, the EU Deforestation Regulation (EUDR), Corporate Sustainability Reporting standards, and Human Rights and Environmental Due Diligence (HREDD), transparency and traceability have shifted from voluntary certification tools to mandatory market entry conditions.

This paper conceptualizes transparency and traceability systems as strategic marketing infrastructures rather than purely technical compliance mechanisms. Drawing on signaling theory, institutional theory, and stakeholder governance perspectives, the study analyses how traceability reduces information asymmetry, mitigates regulatory and reputational risks, and strengthens export positioning in sustainability-sensitive markets.

The research examines certification schemes such as ProTerra and Danube Soya as mechanisms of regional and environmental differentiation, highlighting their contribution to measurable CO<sub>2</sub> reduction and responsible sourcing verification. Additionally, the role of digital knowledge platforms, including EU-FarmBook, AKIS are explored as an emerging driver of data transparency and innovation diffusion within agrifood value chains.

The findings suggest that transparency generates reputational capital, facilitates access to premium segments, and enhances long-term competitiveness, particularly for exporters from transition economies such as Ukraine. The study concludes that successful integration into EU-centered value chains requires the transformation of traceability from a technical requirement into a core element of corporate strategy and international agrarian marketing.

**Keywords:** international agricultural marketing, strategy, export-oriented agricultural sector of Ukraine, CAP, Green Deal, digitalization, traceability of value chains, European integration, sustainable development, ESG reporting



## **Прозорість та простежуваність як стратегічні драйвери міжнародного аграрного маркетингу**

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**Анотація.** Трансформація світових агропродовольчих ринків під впливом правил сталого розвитку, цифровізації та інвестиційних стандартів, орієнтованих на ESG, докорінно змінила конкурентний ландшафт міжнародної аграрної торгівлі. У цьому контексті системи прозорості та відстеження більше не обмежуються функціями дотримання вимог, пов'язаними з безпекою харчових продуктів та регуляторним контролем. Натомість вони все частіше функціонують як стратегічні інструменти, що формують доступ до ринку, позиціонування бренду та формування довіри в транскордонних агропродовольчих обмінах.

Швидка інституціоналізація вимог сталого розвитку в міжнародній торгівлі докорінно змінила конкурентну архітектуру світових агропродовольчих ринків. Відповідно до Європейської зеленої угоди, Регламенту ЄС про вирубку лісів (EUDR), стандартів корпоративної звітності про сталий розвиток та належної перевірки прав людини та навколишнього середовища (HREDD), прозорість та



відстеження перейшли від інструментів добровільної сертифікації до обов'язкових умов виходу на ринок.

У цій статті системи прозорості та відстеження розглядаються як стратегічні маркетингові інфраструктури, а не як суто технічні механізми дотримання вимог. Спираючись на теорію сигналізації, інституційну теорію та перспективи управління зацікавленими сторонами, дослідження аналізує, як відстеження зменшує інформаційну асиметрію, пом'якшує регуляторні та репутаційні ризики, а також зміцнює експортне позиціонування на ринках, чутливих до сталого розвитку.

У дослідженні розглядаються такі схеми сертифікації, як ProTerra та Danube Soya, як механізми регіональної та екологічної диференціації, підкреслюючи їхній внесок у вимірюване скорочення викидів CO<sub>2</sub> та перевірку відповідального постачання. Крім того, роль цифрових платформ знань, включаючи EU-FarmBook та AKIS, досліджується як новий рушій прозорості даних та поширення інновацій у ланцюгах створення вартості агропродовольчої продукції.

Результати дослідження свідчать про те, що прозорість генерує репутаційний капітал, полегшує доступ до преміальних сегментів та підвищує довгострокову конкурентоспроможність, особливо для експортерів з країн з перехідною економікою, таких як Україна. Дослідження робить висновок, що успішна інтеграція в ланцюги створення вартості, орієнтовані на ЄС, вимагає перетворення простежуваності з технічної вимоги на ключовий елемент корпоративної стратегії та міжнародного аграрного маркетингу..

**Ключові слова:** міжнародний аграрний маркетинг, стратегія, експортно-орієнтований агросектор України, CAP, Green Deal, цифровізація, простежуваність ланцюгів вартості, євроінтеграція, сталий розвиток, ESG-звітність.



**Statement of the problem.** The agricultural and forestry sectors in Europe and Ukraine are experiencing a systemic transformation under the combined pressure of the European Green Deal, the EU Deforestation Regulation (EUDR), Corporate Sustainability Due Diligence requirements, and expanding ESG (Environmental, Social, and Governance) reporting standards. These regulatory and market-driven frameworks are reshaping the architecture of international agrarian trade by redefining transparency and traceability as core conditions of market access rather than voluntary sustainability initiatives.

In contemporary global value chains, ESG standards function not only as reporting tools but as strategic governance mechanisms that influence investment flows, buyer selection, supply chain partnerships, and brand positioning. Financial institutions and multinational buyers increasingly require verified ESG performance data, including environmental footprint metrics, labour standards compliance, anti-deforestation guarantees, and governance transparency. Consequently, traceability systems become operational infrastructures enabling ESG verification and disclosure.

However, a structural gap persists between sustainability-oriented research, policy ambition, and practical implementation. Farmers, exporters, and advisors often lack integrated digital platforms and standardised traceability mechanisms that can translate ESG principles into verifiable, market-recognised practices. This disconnect limits agribusinesses, particularly small and medium-sized enterprises, from demonstrating compliance and leveraging ESG performance as a competitive advantage.

The architecture of international agrarian markets is undergoing structural transformation driven by the rapid institutionalization of sustainability governance within the European Union and global trade regimes. Transparency and traceability, historically associated with food safety control, logistics coordination, and regulatory inspection, are increasingly embedded within broader frameworks of environmental accountability, climate governance, and ESG-based financial decision-making.



Under the European Green Deal and its operational instruments – including the Farm to Fork Strategy, the EU Deforestation Regulation (EUDR), the Carbon Border Adjustment Mechanism (CBAM), Corporate Sustainability Reporting Directive (CSRD), European Sustainability Reporting Standards (ESRS), and enhanced importer due diligence obligations – sustainability verification is no longer optional. It is becoming a structural precondition for market participation.

In this evolving regulatory environment, transparency and traceability systems serve multiple strategic functions:

- Regulatory function: ensuring compliance with environmental, climate, and social due diligence requirements.
- Governance function: enabling standardized ESG disclosure and verifiable supply-chain data flows.
- Financial function: influencing access to ESG-driven investment, sustainability-linked financing, and risk-based credit assessment.
- Marketing function: supporting brand differentiation, premium positioning, and buyer trust formation.

The shift is particularly significant in international agrarian trade, where information asymmetry traditionally characterizes cross-border value chains. EU importer obligations now extend responsibility beyond direct suppliers, requiring demonstrable traceability across production stages. This transforms traceability from a backend documentation tool into a visible component of competitive positioning.

Furthermore, ESG-driven investment logic has redefined the evaluation criteria applied by financial institutions and multinational buyers. Verified environmental footprint data, carbon accounting, land-use compliance, biodiversity protection measures, and governance transparency increasingly determine supplier eligibility. In this context, traceability systems function as the operational infrastructure that enables ESG verification, data credibility, and reputational signaling.

Consequently, transparency and traceability are transitioning from compliance-oriented technical mechanisms to strategic infrastructures that shape export



competitiveness, market access stability, and long-term integration into EU-centered value chains.

For export-oriented economies such as Ukraine, this transformation is particularly consequential. Alignment with EU sustainability frameworks is not merely regulatory adaptation but a strategic requirement for maintaining and expanding participation in high-value international markets. The competitive advantage increasingly depends not only on price and volume but on verifiable sustainability performance embedded within traceable supply chains.

Against this background, the central research question guiding the study is:

- How do transparency and traceability systems transform from compliance tools into strategic marketing assets in international agrarian markets?

This overarching question is supported by the following analytical sub-questions:

RQ1. Through which mechanisms do traceability systems reduce information asymmetry and strengthen trust within global agrifood value chains?

RQ2. How does the integration of ESG metrics into traceability infrastructures influence export market access and buyer selection?

RQ3. In what ways does digital traceability contribute to brand differentiation and premium positioning in EU markets?

RQ4. How does regulatory sustainability governance (Green Deal, CSRD/ESRS, EUDR, CBAM) alter the competitive logic of international agrarian marketing?

RQ5. What are the specific implications for Ukraine-EU trade integration and export resilience?

By addressing these questions, the study seeks to reconceptualize transparency and traceability as value-creation mechanisms rather than cost-driven compliance obligations, thereby positioning them at the core of strategic international agrarian marketing.

**Analysis of recent research and publications.** Recent scholarship increasingly frames traceability in agri-food supply chains not merely as a compliance or logistics



tool, but as an infrastructure of trust that enables verifiable provenance, authenticity and risk management across fragmented value chains. Systematic reviews show that traceability strengthens coordination and accountability by improving the reliability, accessibility and immutability of product-journey information, which is especially relevant where buyers require credible proof of sustainability, origin and quality attributes (Patelli & Mandrioli, 2020; Westerlund et al., 2021; Ellahi et al., 2024). At the same time, research consistently reports that the governance of traceability (who validates, who owns data, and how disputes are handled) is as decisive for trust as the technology itself, and that weak data governance can neutralize the expected market benefits even in technically advanced systems (Westerlund et al., 2021; Peng et al., 2023).

A major stream of 2020-2024 studies focuses on digital traceability (IoT/platforms/blockchain). Reviews and applied designs highlight opportunities for tamper-resistant records and improved transparency, but converge on persistent constraints: interoperability between actors, scalability, data quality at entry points (“garbage-in/garbage-out”), implementation costs, and incentive misalignment in multi-actor chains (Patelli & Mandrioli, 2020; Peng et al., 2023; Lv et al., 2023; Ellahi et al., 2024). Importantly for international agrarian marketing, the literature suggests that many studies remain technology-centred (how systems work) and less frequently model how traceability investment becomes competitive advantage (e.g., via reputational capital, reduced contract risk, or improved buyer selection) (Peng et al., 2023; Ellahi et al., 2024). Where market valuation is measured, the evidence indicates that traceability can generate price premiums, but the magnitude depends on what information is disclosed and how it is framed: a large meta-analysis finds an average positive willingness-to-pay effect for traceability, while showing strong heterogeneity by product category, region and the combination of traceability with other credence attributes (Tran et al., 2024).

A fast-growing body of work also links traceability to sustainability/ESG disclosure, arguing that credible sustainability claims require operational data



infrastructures rather than “reporting only”. Mapping studies demonstrate that sustainability disclosure and transparency practices are uneven and often fragmented, which increases verification gaps and creates reputational and compliance risks (Steiner et al., 2024). In the Ukrainian context, recent peer-reviewed publications emphasize that movement toward EU-aligned sustainability reporting standards depends on the availability of traceable, structured datasets and internal capability to collect and validate non-financial indicators at firm and supply-chain levels (Metelytsia, 2023). War-driven disruptions further amplify the strategic value of traceability because trade routes, logistics and contract reliability have become more volatile; empirical evidence shows measurable export and trade shocks and highlights the need for adaptive logistics and information systems that support resilience and market re-entry (Countryman et al., 2024; Verbytskyi & Shyriaieva, 2024).

Across these strands, the key research gap remains integration: despite strong evidence on digital traceability architectures and the growing importance of sustainability disclosure, there is still limited integrative empirical work explaining how traceability-enabled ESG verification becomes a driver of international agrarian marketing performance (market access, trust formation, buyer screening, risk mitigation and premium positioning), particularly under the Ukraine-EU integration and wartime-risk conditions (Tran et al., 2024; Steiner et al., 2024; Countryman et al., 2024).

**The purpose of the article.** The purpose of the article is to conceptualise and substantiate transparency and traceability as strategic drivers of international agrarian marketing by analysing their role as ESG-enabling infrastructures that facilitate market access, regulatory compliance, buyer trust, and export competitiveness in the context of Ukraine-EU integration.

The study aims to demonstrate how the integration of traceability systems with ESG performance indicators transforms sustainability from a compliance obligation into a strategic marketing asset, contributing to reputational capital, risk mitigation,



premium market positioning, and long-term supply chain partnerships within global agrifood value chains.

**Methods.** The research is based on a multi-method approach combining conceptual, analytical, and comparative methods.

First, a systemic and institutional analysis is applied to examine the regulatory environment shaping international agrarian marketing, including EU sustainability frameworks (European Green Deal, EUDR, CSRD/ESRS, Sustainability Due Diligence). This allows the identification of transparency and traceability as governance mechanisms influencing market access and competitive positioning.

Second, a comparative and structural analysis is used to assess the interconnection between ESG standards, traceability systems, certification schemes, and export-oriented marketing strategies. Particular attention is given to the Ukraine-EU integration context.

Third, a literature review and synthesis of recent international and Ukrainian academic publications is conducted to identify existing research gaps concerning the traceability-ESG-marketing nexus.

Fourth, elements of conceptual modelling are employed to develop an ESG-Traceability-Marketing framework explaining how transparency mechanisms translate into strategic marketing outcomes (trust formation, risk mitigation, differentiation, premium segments, and export resilience).

Finally, a qualitative case-based analysis of industry practices (including certification requirements and digital platforms) is used to illustrate practical implementation pathways and institutional constraints for agrarian enterprises, particularly SMEs. This methodological combination enables the integration of regulatory, technological, and marketing perspectives into a unified analytical framework.

**Results.** The findings confirm that transparency and traceability systems in international agrarian trade have moved beyond their traditional compliance function and increasingly operate as strategic marketing infrastructures.



Across the analysed cases (grain exporters, organic honey producers, certified soy suppliers), traceability performs a dual transformation:

- Operational transformation – from documentation and inspection tool to ESG-enabling data infrastructure;
- Strategic transformation – from cost center to value-generating capability influencing export competitiveness.

This transformation occurs when traceability systems are integrated with ESG indicators, verifiable through certification or digital audit trails, embedded into export communication and buyer interaction. Thus, transparency becomes a mechanism of value creation, not merely risk avoidance.

Information asymmetry is a structural feature of international agrifood trade, particularly in EU-oriented markets where buyers cannot directly observe production conditions. The case-based analysis identifies three operational mechanisms through which traceability reduces asymmetry and enhances trust.

Table 1 - Analytical mechanism framework: traceability mechanisms and trust outcomes across cases

| Mechanism                      | Operational form                                                   | Case evidence                            | Marketing effect                                              |
|--------------------------------|--------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------|
| Credible signaling             | Chain-of-custody documentation, certification labels               | Certified soy (Danube Soya, Europe Soya) | Reduces buyer uncertainty; improves supplier screening/       |
| Auditability and verifiability | Structured input records, origin documentation, compliance reports | Grain exporters                          | Fewer inspections; lower rejection probability                |
| Digital transparency tools     | Batch-level traceability, QR systems, digital origin validation    | Organic honey                            | Strengthens authenticity claims; supports premium positioning |

Source: collected by authors

*Mechanism 1: Credible signaling.* Traceability functions as a signal of verified origin, production standards compliance, environmental and governance reliability. In the certified soy case, full chain-of-custody documentation reduces information gaps



in EU procurement processes. Certification-backed traceability transforms production attributes into verifiable claims, reducing perceived buyer risk. As a result, traceability enhances signaling credibility, consistent with signaling theory, thereby increasing supplier selection probability.

*Mechanism 2: Auditability and verifiability.* In bulk grain exports, traceability improves inspection efficiency, documentation completeness, regulatory audit readiness. Structured traceability systems correlate with lower shipment rejection risk and reduced compliance friction. Audit-ready traceability reduces transaction costs and regulatory exposure, strengthening trust through procedural reliability.

*Mechanism 3: Digital transparency tools.* In the organic honey case, digital traceability enables batch-level origin disclosure, QR-based authenticity verification, integration of traceability into export branding. This reduces reputational risk and enhances consumer-facing credibility. Digital traceability strengthens trust not only at B2B level but across downstream value chains.

Across cases, the data suggest:

- Certified soy demonstrates the strongest signaling effect.
- Grain exporters benefit primarily from auditability gains.
- Organic honey achieves trust-based premium enhancement through digital transparency.

This help us to develop a mechanism flow model: traceability-trust mechanism (Figure 1).

The mechanism presented in Figure 1 has direct strategic implications for Ukrainian exporters operating in EU-oriented markets. Traceability infrastructure increasingly functions as a market-entry condition rather than a technical formality. Under EUDR, CSRD/ESRS, and importer due diligence rules, suppliers must provide verifiable production data to remain eligible in EU supply chains.

Additionally, traceability reduces information asymmetry and perceived country risk, which is particularly relevant in the context of geopolitical instability. Verified origin, input documentation, and ESG-related data enhance credibility and buyer



confidence. ESG-integrated traceability lowers perceived regulatory exposure for EU importers, making transparent suppliers more attractive partners.

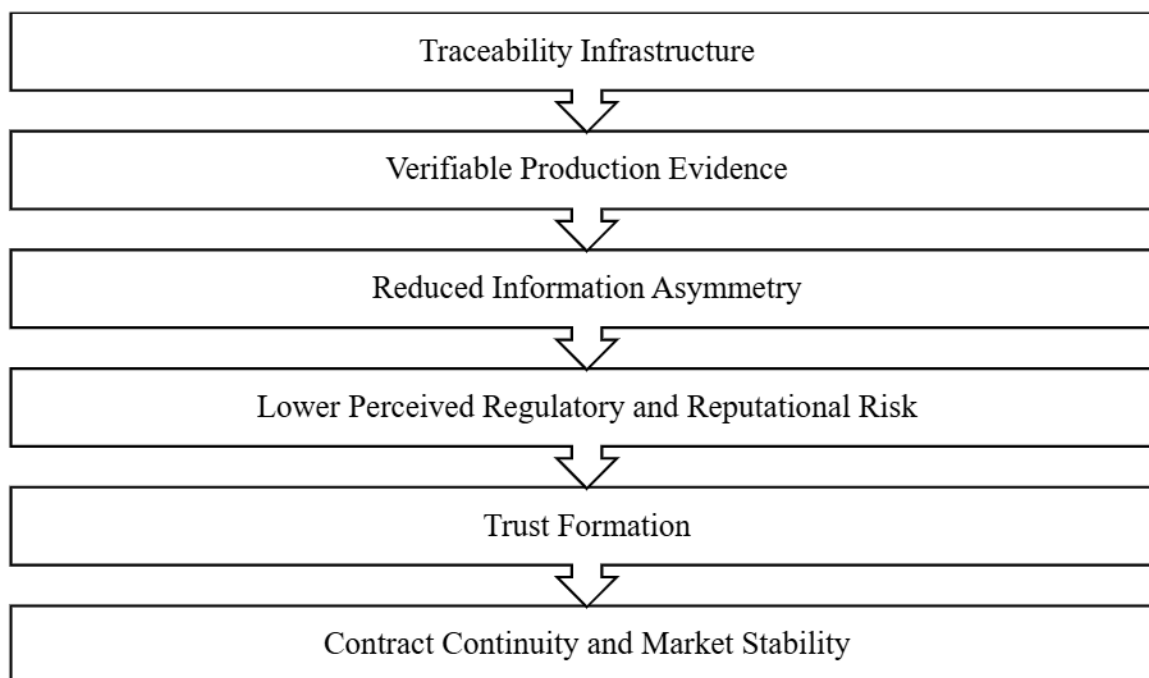


Figure 1 - Mechanism flow model: Traceability – Trust mechanism

Source: developed by authors

Finally, firms embedding transparency into export strategy demonstrate stronger contract stability and market resilience, supporting long-term Ukraine-EU trade integration.

Thus, for Ukrainian farmers and agribusinesses, traceability should be treated not as a compliance cost, but as a strategic capability strengthening competitiveness in sustainability-driven markets.

#### *RQ2. Integration of ESG metrics and export market access.*

The findings indicate that traceability alone does not ensure competitive advantage for Ukrainian agrarian exporters; its strategic value emerges when integrated with verifiable ESG metrics aligned with EU sustainability governance.

In EU-oriented procurement, ESG criteria increasingly function as eligibility filters. Suppliers capable of providing structured environmental, social, and governance data experience smoother market onboarding and reduced compliance



delays. Case evidence confirms differentiated effects across segments. Ukrainian grain exporters benefit primarily through enhanced procedural reliability and lower audit risk. Certified soy suppliers access sustainability-sensitive EU segments where ESG-integrated traceability constitutes a structural market-entry requirement. Organic honey exporters leverage environmental transparency to strengthen premium positioning and buyer loyalty. Overall, ESG-integrated traceability increases EU market access probability and reinforces buyer selection outcomes. In the Ukraine-EU trade context, export competitiveness is therefore increasingly determined by the capacity to embed ESG verification within traceability systems rather than by price advantages alone.

*RQ 3. Digital traceability and brand differentiation in EU markets.* The transformation of digital traceability into a marketing asset cannot be understood without situating it within the broader EU sustainability governance architecture – Table 2.

Table 2 - EU sustainability framework and implications for Ukrainian agrarian exporters

| EU Framework                      | Core requirement                                 | Implication for Ukrainian farmers                              | Strategic effect                      |
|-----------------------------------|--------------------------------------------------|----------------------------------------------------------------|---------------------------------------|
| European Green Deal               | Climate neutrality and sustainability transition | Alignment of production practices with environmental standards | Long-term market eligibility          |
| Farm to Fork Strategy             | Sustainable food systems, reduced inputs         | Documentation of pesticide use, traceable supply chains        | Enhanced transparency expectations    |
| EUDR (Reg. 2023/1115)             | Deforestation-free supply chains                 | Geolocation-based traceability and land-use verification       | Market entry condition                |
| CSRD / ESRS                       | Standardized ESG reporting                       | Structured environmental and governance data collection        | Investor & buyer screening compliance |
| Due Diligence Obligations (HREDD) | Supply-chain risk assessment                     | Verifiable supplier documentation                              | Reduced importer liability            |
| CBAM (where relevant)             | Carbon accountability                            | Emissions-related data readiness                               | Future trade risk mitigation          |

Source: developed by authors

For Ukrainian agrarians, these regulatory instruments collectively redefine traceability from operational documentation to strategic infrastructure. Compliance with these frameworks reduces entry barriers, strengthens reputational positioning,



increases access to EU-centered value chains. Thus, digital traceability becomes a prerequisite for sustainable EU integration.

The analysis demonstrates that digital traceability strengthens brand positioning in sustainability-sensitive EU segments, particularly where product attributes are not directly observable. For Ukrainian agrarian exporters, the marketing effect of digital traceability varies by product category. In bulk grain trade, digital systems primarily enhance compliance efficiency and documentation reliability, with limited direct impact on branding. In contrast, for organic honey and certified soy, digital traceability enables verifiable sustainability claims, batch-level transparency, and integration of ESG evidence into export communication.

By transforming production data into accessible and auditable information, digital traceability reduces reputational risk and enhances claim credibility. This strengthens supplier differentiation in markets where authenticity, sustainability, and regulatory conformity influence procurement decisions.

Thus, digital traceability contributes to brand positioning not automatically, but when embedded into marketing architecture and aligned with ESG verification standards. In the Ukraine-EU trade context, such integration supports premium segment access and reinforces competitive resilience under sustainability-driven governance.

The cumulative effect of Green Deal, Farm to Fork, ESG reporting, and EUDR requirements suggests that transparency and traceability are not temporary regulatory pressures but structural components of EU market architecture. For Ukrainian farmers, this implies:

- EU alignment is not only legal harmonization, but strategic repositioning.
- Traceability capacity determines long-term export resilience.
- Digital transparency strengthens credibility under geopolitical uncertainty.
- ESG-aligned production supports both compliance and branding.



Table 3 synthesizes the empirical observations from the three case studies and evaluates the degree of support for hypotheses H1-H5 within the Ukraine-EU trade context.

Table 3 - Empirical support for research hypotheses

| Hypothesis                                               | Empirical observation                                             | Result                  |
|----------------------------------------------------------|-------------------------------------------------------------------|-------------------------|
| H1. Higher traceability increases EU market access       | Strongest effect in certified soy; moderate in grain exports      | Supported               |
| H2. ESG transparency increases buyer trust               | Evident in long-term honey and soy contracts                      | Supported               |
| H3. Digital traceability strengthens brand positioning   | Significant in honey; moderate in soy                             | Partially supported     |
| H4. ESG-verified traceability reduces regulatory risk    | Fewer audits and lower rejection rates in certified supply chains | Supported               |
| H5. Transparency-based strategy leads to higher premiums | Strong in honey; moderate in soy; weak in grain                   | Conditionally supported |

Source: developed by authors

The hypothesis testing confirms that traceability generates the strongest competitive effects when combined with ESG verification and embedded into marketing strategy. H1 and H4 receive consistent support across cases, indicating that traceability primarily functions as a market access and risk mitigation mechanism in EU-oriented trade. H2 is supported through observed contract continuity and reduced buyer uncertainty. The premium effect H5 appears product-dependent – it is strongest in credence goods (organic honey), moderate in certified sustainability segments (soy), and limited in bulk commodity markets (grain).

Overall, the results demonstrate that transparency delivers measurable competitive advantages when strategically integrated, while compliance-only approaches generate stability but limited value capture.

#### *RQ 4. Regulatory sustainability governance and the shift in competitive logic.*

The analysis demonstrates that EU sustainability governance fundamentally alters the competitive structure of international agrarian marketing. Under the European Green Deal, EUDR, CSRD/ESRS, CBAM, and supply-chain due diligence requirements, competition increasingly incorporates verifiable sustainability performance as a market determinant. Regulatory frameworks extend responsibility



along the value chain, effectively transforming importers into compliance gatekeepers. This regulatory shift produces three structural effects:

- Eligibility reconfiguration (market access becomes conditional upon traceable ESG compliance rather than solely price competitiveness);
- Risk-based procurement (buyers evaluate suppliers through a risk-adjusted lens, prioritizing traceability-backed environmental and governance reliability);
- Transparency as competitive variable (sustainability verification becomes embedded within supplier selection criteria, altering the traditional price-volume competitive model).

Empirical observations across cases confirm that firms with ESG-integrated traceability experience fewer onboarding delays, reduced audit frequency, and stronger contract continuity. Thus, regulatory sustainability governance reshapes international agrarian marketing from cost-driven competition toward credibility- and risk-driven competition.

*RQ5. Implications for Ukraine-EU trade integration and export resilience.*

The Ukraine-EU dimension adds systemic importance to transparency and traceability. For Ukrainian agrarian exporters, EU sustainability requirements operate not merely as external regulatory pressure but as structural integration conditions. The ability to provide verifiable ESG-backed traceability enhances EU market stability, reduces perceived country-risk exposure, strengthens buyer confidence amid geopolitical uncertainty, supports long-term contractual engagement.

The case analysis indicates that exporters with developed traceability systems demonstrate greater adaptability to evolving EU regulatory demands. Conversely, limited digital infrastructure and ESG reporting capacity constrain SME participation in high-value EU segments. From an integration perspective, traceability capacity functions as a competitiveness multiplier. It enables Ukrainian producers to move from price-based positioning toward sustainability-adjusted value competition. In the context of post-war reconstruction and export diversification, transparency thus becomes a strategic instrument of economic resilience and European integration. ESG-



integrated traceability is not only a firm-level strategic asset but also a macro-level integration mechanism reinforcing Ukraine's position within EU-centered agrifood value chains.

To systematise the findings derived from RQ 1-RQ 5 and to integrate the regulatory, operational, and marketing dimensions into a unified analytical structure, the study proposes a consolidated framework summarising the ESG-Traceability-Marketing nexus in the context of Ukraine-EU agrarian integration.

Table 4 – ESG-Traceability-Marketing Framework for Ukraine-EU Integration

| Level                           | Dimension               | Core elements                                                                   | Operational Requirement for Ukrainian agrarians                 | Strategic marketing outcome                      |
|---------------------------------|-------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------|
| I. EU Sustainability Governance | Regulatory Architecture | Green Deal; Farm to Fork; EUDR; CSRD/ESRS; Due Diligence; CBAM                  | Alignment of production and reporting systems with EU standards | Eligibility for EU market participation          |
| II. Traceability Infrastructure | Operational Capability  | Field-to-market documentation; geolocation; chain-of-custody; digital platforms | Implementation of verifiable, auditable traceability systems    | Reduced compliance friction; lower importer risk |
| III. ESG Verification Layer     | Environmental           | Carbon metrics; pesticide/input records; land-use compliance                    | Structured environmental data collection                        | Enhanced sustainability credibility              |
|                                 | Social                  | Labour standards; due diligence                                                 | Documented supplier compliance                                  | Reduced reputational risk                        |
|                                 | Governance              | Data integrity; anti-corruption procedures                                      | ESG-aligned internal control systems                            | Investor and buyer trust                         |
| IV. Marketing Integration       | Signaling & Branding    | Certified claims; digital transparency; sustainability narratives               | Embedding ESG evidence into export communication                | Brand differentiation & premium positioning      |
| V. Competitive Outcomes         | Market Performance      | EU onboarding; contract stability; premium access; resilience                   | Strategic use of transparency as export capability              | Long-term integration into EU value chains       |

Source: developed by authors

While the preceding analysis demonstrated the differentiated effects of traceability across product segments and governance layers, a holistic perspective is



necessary to illustrate how EU sustainability architecture, operational traceability systems, ESG verification, and marketing outcomes interact within a single strategic continuum. The framework synthesises institutional drivers, firm-level capabilities, and competitive outcomes, highlighting transparency as a multi-layered integration mechanism rather than a standalone compliance tool.

This integrative perspective enables a structured understanding of how regulatory alignment evolves into strategic positioning and ultimately into long-term export resilience within EU-centered value chains.

The framework demonstrates that transparency functions as a multi-layered strategic system. Regulatory pressure initiates compliance requirements, but competitive advantage emerges only when traceability and ESG verification are embedded into marketing architecture. For Ukrainian agrarians, the transition from Level I (compliance) to Level IV (strategic integration) determines the magnitude of competitive returns.

**Conclusions.** The findings of this study indicate that transparency and traceability are no longer peripheral compliance mechanisms but structural determinants of competitiveness within the EU-centered agrifood trade architecture. The cumulative impact of the European Green Deal, EUDR, CSRD/ESRS, and due diligence obligations establishes ESG-integrated traceability as a prerequisite for market access, risk mitigation, and long-term contract stability.

For Ukraine, this transformation carries strategic implications beyond firm-level adaptation. The capacity of Ukrainian agrarian producers to implement verifiable traceability and ESG-aligned data systems directly influences the depth and sustainability of Ukraine-EU trade integration. Transparency, therefore, should be treated as a national competitiveness infrastructure rather than an administrative burden.

Policy priorities should include the development of interoperable digital traceability platforms, support mechanisms for SME ESG readiness, harmonization of reporting standards with EU requirements, and integration of traceability capacity-



building into export promotion strategies. Embedding transparency into agrarian modernization policy will not only facilitate regulatory compliance but also enhance reputational capital, attract ESG-oriented investment, and strengthen export resilience in a context of geopolitical uncertainty.

In this regard, ESG-integrated traceability represents a strategic vector of European integration and a foundational pillar for the long-term competitiveness of Ukraine's export-oriented agricultural sector.

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