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Insertion of Value-Added Agricultural Products into  
Global Trade in Latin America: A Systematic  
Literature Review

**Project prior to obtaining a Bachelor's Degree in  
International Studies**

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I dedicate this thesis to my country. At a time when many dream of finding opportunities beyond our borders, I want to acknowledge and thank this land that has given me everything I need to grow and move forward. Today, I feel that it is my turn to grow here and, at the same time, contribute to the growth of my country.

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I am deeply grateful to my loved ones for their unconditional support.

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## ABSTRACT

This study examines how Latin America's dependence on agricultural primary-commodity exports affects the region's ability to place value-added products in international markets, despite its competitive advantages in product quality, volume, and prices. A systematic literature review was conducted using the PRISMA 2020 guidelines, covering academic and technical studies published between 2016 and 2026 in Spanish and English on agri-food trade, global value chains, public policies, and innovation. The selected documents were organized into analytical categories and subsequently subjected to text metric analysis using the IRAMUTEQ software, which enabled the identification of the most frequent and relevant terms and the main semantic clusters in the literature. The findings show that most publications focus on exports of agricultural primary commodities and to a lesser extent; on technological innovations and new production methods in the rural sector. However, there is limited research that jointly addresses key dimensions such as the historical origins of primary-commodity dependence in Latin America, its long-term economic and social effects, the sustainability of agri-food systems and the exploration of new potential markets for value-added products. The study concludes that reducing this dependence and moving towards a stronger presence of value-added agricultural exports requires productive and technological upgrading, together with institutional reforms that strengthen small and medium-scale producers; hereby generating social, economic, and environmental benefits and supporting a more sustainable integration into global trade.

**Keywords:** agricultural exports, global value chains, Latin America, primary commodities, small and medium producers, sustainability, value-added products

## RESUMEN

La investigación examina cómo la dependencia de América Latina en la exportación de materias primas agrícolas limita su capacidad para integrarse al comercio internacional mediante productos con valor agregado, a pesar de sus ventajas competitivas en calidad, cantidad, precio y diferenciación. Para ello, se realizó una revisión sistemática de literatura bajo el protocolo PRISMA 2020, incluyendo estudios publicados entre 2016 y 2026 en inglés y español sobre comercio agropecuario, cadenas globales de valor, políticas públicas e innovación. Los documentos fueron organizados en categorías analíticas y analizados mediante técnicas texto métricas con el software IRAMUTEQ, lo que permitió identificar patrones temáticos y léxicos predominantes. Los resultados muestran que la literatura se concentra principalmente en la exportación de productos derivados de materias primas y, en menor medida, en innovaciones tecnológicas y procesos productivos agrícolas. Sin embargo, se detectan vacíos relevantes en torno al origen histórico de la dependencia, sus efectos estructurales, la sostenibilidad del sector agropecuario y la identificación de nuevos mercados potenciales. En consecuencia, el estudio concluye que la reducción de esta dependencia y la incorporación de valor agregado requieren transformaciones productivas y tecnológicas, acompañadas de reformas institucionales orientadas a fortalecer a los pequeños y medianos productores, lo que podría generar beneficios económicos, sociales y ambientales, así como mejorar la sostenibilidad a largo plazo del sector.

**Palabras clave:** agricultura, latinoamericana, cadenas globales de valor, materias primas, productos con valor agregado, sostenibilidad agropecuaria

## **1. Introduction**

According to Andrade (2026), Latin America's economy still relies heavily on raw material exports, which in most South American countries represent one of the primary sources of income after oil. This hampers the region's economic development by limiting the creation of value-added products and hindering long-term sustainability. The bulk of total raw material production is traded in its basic form, exposing the region to international price volatility, compounded by the fact that much of the region operates within a common market characterized by similarities in quality. This forces neighboring countries to compete on price. The limited diversification of products and lack of transformation prevent access to new potential markets with high quality standards (Vázquez López, 2025).

This situation is exacerbated by weak standardization and certification infrastructure, alongside technological limitations, institutional and cultural frameworks, where the vast majority of countries continue to sell massive volumes of raw materials to Europe or North America. However, the growing international demand for value-added products in global trade presents an opportunity for countries that produce and distribute raw materials, leveraging advantages such as climatic variations and new technological advancements (Economic Commission for Latin America and the Caribbean, 2025). Moreover, most countries fail to meet these expectations due to structural limitations, including lack of information, low institutional investment, inefficient logistics, and insufficient R&D spending, which create a gap between production capacity and integration into global value chains. The importance of this research lies in understanding the historical background, current situation, and potential solutions through new markets via a systematic literature review.

Within this framework, the research motivation is to organize and analyze existing literature in English and Spanish on raw material dependence and the real opportunities to intensify agro-exports in Latin America with greater value added, through a systematic review. Furthermore, following the PRISMA methodology, the general objective is to conduct a systematic literature review on Latin America's participation in global agroindustrial value chains, aiming to identify the main factors, strategies, and opportunities to increase value added in the region's agricultural exports. From this general objective derive four specific ones: (1) analyze global economic trends and the context of international agro-livestock trade that affect the insertion of Latin American agricultural products into global markets; (2) examine the functioning and structure of global agroindustrial value chains,

identifying factors that condition value added generation in agricultural products; (3) evaluate the role of technological innovation and public policies in strengthening the competitiveness and sustainability of the agroindustrial sector in Latin America; and finally (4) propose strategies to support small and medium-sized producers in overcoming technological, financial, and market access limitations, facilitating their integration into international trade channels with value added.

Thus, this article is structured as follows: Section 2 establishes the theoretical framework for the document. Section 3 outlines the method to be applied, following PRISMA guidelines and the procedure for textometric analysis. Section 4 presents in detail the results obtained after applying the method for systematic and textometric analysis.

Section 5 discusses the results in relation to the obtained findings and related literature. Finally, Section 6 presents the conclusions in response to the stated objectives.

## **2. Theoretical Framework**

Latin America faces a complex scenario regarding its participation in global agrifood trade. The region maintains a heavy reliance on the export of basic commodities and raw materials, which limits its capacity to achieve sustainable development and competitiveness in highly demanding international markets (Economic Commission for Latin America and the Caribbean [ECLAC], 2012; Compagnie Française d'Assurance pour le Commerce Extérieur, 2021). This situation is intensified by the emergence of new actors, such as China, which are reshaping the global geopolitical structure and influencing regional production and trade dynamics (Asesores en Comercio Exterior, 2025; ECLAC, 2023).

Against this backdrop, the Global Value Chains (GVC) approach offers a key theoretical perspective for understanding how productive activities are fragmented internationally and how countries can improve their positioning by adding value and incorporating technological innovation (Schteingart et al., 2017). This paradigm emphasizes the importance of strengthening productive links, from primary production to final processing. Despite theoretical advances, Latin American reality reveals a high concentration in low-value-added spheres, which restricts technological upgrading and the expansion of productive capacities in the agricultural and agro-industrial sectors (Schteingart et al., 2017). Reversing this trend requires sustained investment in infrastructure, research, development, and innovation (R+D+i), as well as specialized human capital training.

Within this framework, innovation emerges as an essential driver to address challenges of productivity, sustainability, and resilience. The Food and Agriculture Organization of the

United Nations (FAO, 2018) defines agricultural innovation as the adoption of new products, processes, and technologies aimed at increasing production efficiency, reducing environmental impacts, and strengthening adaptive capacity to climate change. Conversely, the Organisation for Economic Co-operation and Development (OECD, 2025) emphasizes that public policies must be oriented toward promoting agronomic practices compatible with environmental sustainability, ensuring biodiversity conservation and the rational management of natural resources.

In this sense, the World Bank (2023) maintains that agro-industrial transformation in Latin America requires articulating strategies for rural digitalization, the expansion of logistical infrastructure, and green financing to improve export competitiveness and promote the economic inclusion of small-scale producers. At an economic level, agro-industry plays a strategic role in the region's productive fabric, contributing significantly to GDP and generating employment across various sectors (ECLAC, 2011; International Forum for the Livestock, Poultry, and Swine Industry [FIGAP], 2025). However, the transition from exporting raw materials to producing goods with higher value-added remains a structural challenge that demands policies for diversification and quality certification.

Value addition—understood as the set of processes that increase the economic and competitive value of agro-industrial products—includes physical transformation, quality differentiation, and sustainable certification (FAO, 2018; Lema, n.d.). These processes require technical support, adequate infrastructure, and access to advanced technologies. At the microeconomic level, small and medium-sized producers still face disadvantages due to a lack of financing, technology, and access to more competitive markets (Cuevas García et al., 2013). These gaps limit their effective insertion into global chains, which tend to be concentrated among large corporations.

To mitigate these inequalities, associative models—such as cooperatives, clusters, or business alliances—have proven to be effective strategies for productive inclusion, as they enhance competitiveness, allow for cost-sharing, and facilitate access to international certifications (Getulio Vargas Foundation [FGV], 2017; Reardon et al., 2019). Thus, strengthening Latin American agro-industry requires an integrated vision that articulates macroeconomic strategies, technological innovation, environmental sustainability, and direct support for small producers. This will allow for a more balanced and sustainable international insertion, driving value creation throughout the entire agrifood chain (FAO, 2018; FIGAP, 2025; Schteingart et al., 2017).

Latin America maintains a complex set of issues regarding its insertion into global

agrifood trade, which is not a recent phenomenon but rather persists from the colonial era. During this period, regional states were shaped to supply metropolises with raw materials—such as metals, sugar, cocoa, wheat, hides, and dyes. To this end, they facilitated the export of primary goods and the import of manufactures—European products of higher value (ECLAC, 2011; Prebisch, 1950). This pattern laid the foundations for an "outward-looking" productive structure, specialized in low-processed goods with scarce national industrialization. This consolidated technological and commercial dependence on the centers of economic power (ECLAC, 2012).

Over time, this model adapted but did not break. During the 19th and much of the 20th century, the new republics maintained an international insertion centered on the export of agricultural and mineral commodities, such as coffee, bananas, meat, saltpeter, or oil, while continuing to import manufactured goods and capital from Europe and, later, the United States (FGV, 2017; Prebisch, 1950). From a structuralist reading, this inertia explains why the region consolidated a peripheral position in the world economy, where the terms of trade moved unfavorably for those selling raw materials and buying advanced products, thus reinforcing the transfer of wealth from the periphery to the center (FGV, 2017; Prebisch, 1950). In practical terms, this means the region has increased export volumes without proportionally improving its level of development.

This historical legacy is reflected today in a strong dependence on raw material exports, limiting the possibility of achieving sustainable and competitive development in highly demanding international markets (ECLAC, 2012; Compagnie Française d'Assurance pour le Commerce Extérieur, 2021). Furthermore, the situation is aggravated by the emergence of new actors, such as China, whose demand for large quantities of soy, meat, minerals, and other primary products reinforces specialization.

In this context, the Global Value Chains (GVC) approach serves as a key theoretical perspective for understanding how productive activities are fragmented internationally and to what extent countries can improve their insertion by adding value and integrating technological innovation (Schteingart et al., 2017). This paradigm reveals that world trade is no longer organized by countries, but by links: (1) research, (2) inputs, (3) production, (4) processing, (5) logistics, (6) marketing, and (7) associated services. In the Latin American

case, the region tends to be located in the most primary links of agro-industrial chains, in terms of primary production and, to a lesser extent, basic processing. Meanwhile, higher-value positions—such as branding, advanced transformation, global distribution, or digital platforms—are concentrated in more developed economies (Bárcena & Cimoli, 2020;

Simarro, 2018). Thus, many countries with abundant agricultural resources capture only a very small portion of the final value (Bárcena & Cimoli, 2020).

Despite theoretical progress, Latin American reality shows an extremely high concentration in low-value-added spheres, stifling technological upgrading and the improvement of productive capacities in the agricultural and agro-industrial sectors (Schteingart et al., 2017). Reversing this historical trend implies sustained investment in infrastructure, R+D+i, specialized human capital training, and institutional changes that support the leap to more complex activities (ECLAC, 2011). Otherwise, the region will be condemned to reproduce a scheme similar to the colonial one, but now delivering to new economic powers and new global corporate chains.

In this environment, innovation is a primary driver for facing productivity, sustainability, and resilience challenges in agriculture. The FAO defines agricultural innovation as the adoption of new products, processes, and technologies to increase production efficiency, reduce environmental impacts, and strengthen adaptive capacity to climate change (Echeverría, 2025; FAO, 2018). This ranges from improvements in seeds and agronomic practices to organizational changes, extension services, information systems, and new business models. For its part, the OECD maintains that public policies aimed at value creation in agriculture should focus on the dissemination of agronomic practices compatible with environmental sustainability, guaranteeing biodiversity conservation and the rational use of natural resources, so that the increase in added value is not built at the expense of further ecological degradation (OECD et al., 2025).

At the economic level, agro-industry plays a strategic role within the region's productive framework, contributing significantly to GDP and generating employment across different sectors (ECLAC, 2011; FIGAP, 2025). However, the paradigm shift from exporting commodities to the production and export of goods with higher value-added within global value chains remains a structural challenge requiring policies for diversification, quality certification, and institutional strengthening (ECLAC, 2011; FIGAP, 2025). Value addition, understood as the processes that increase the economic and competitive value of agro-industrial products, covers physical transformation, quality differentiation, sustainable certification, packaging, branding, and origin narratives. These aspects demand technical assistance, proper infrastructure, access to cutting-edge technologies, and regulatory frameworks that facilitate standardization, safety, and traceability, ensuring that international insertion is based on more sophisticated and sustainable products (FAO, 2018; Lema, n.d.).

In the microeconomic dimension, small and medium producers continue to face

disadvantages associated with limited access to financing, technology, and more competitive markets (Cuevas, n.d.; FGV, 2017). These gaps are related to a long history of land and economic power concentration since the colonial era, when large estates (haciendas) and export groups controlled access to markets and credit, leaving peasants and rural communities in subordinate positions (Ciaschi et al., 2021). Although contexts have changed, many of these asymmetries are reproduced today in difficulties in meeting standards, accessing certifications, or negotiating fair prices in chains dominated by large buyers (Ciaschi et al., 2021; FGV, 2017).

Given this evidence, associative models such as cooperatives, clusters, and business alliances have proven to be effective strategies for productive inclusion, contributing to improved competitiveness, sharing relevant costs, and facilitating access to international certifications (FGV, 2017; Schteingart et al., 2017). Associativity breaks part of the historical logic of fragmentation by enabling small producers to negotiate and sell in blocks, share food transformation infrastructure, and access collective innovation and financing programs that would be unattainable individually (Reardon et al., 2019; Schteingart et al., 2017). From this perspective, collective arrangements are configured as a concrete response to the heritage of inequitable agrarian structures that persist in the region.

Recent literature not only analyzes the structural diagnosis of raw material dependence but also examines methods for upgrading within global agro-industrial chains. In other words, it focuses on how producers can move toward more complex functions and capture greater value (Padilla & Oddone, 2016). Studies of export horticulture in Latin America indicate that certain producers have evolved from a role restricted to primary production to performing tasks of marketing, logistical coordination, and standards adjustment—known as functional upgrading (Gauna et al., 2021; Grijalva Villa et al., 2025).

These studies demonstrate that optimization means not only improving production processes but also managing export contracts directly, negotiating with supermarket chains, and continuously adjusting to phytosanitary and quality standards in international markets (Grijalva Villa et al., 2025). According to Padilla and Oddone (2016), this type of scaling is based on learning ability, organizational innovation, and the establishment of trust among actors. It is proposed as a specific path for Latin American producers to not only trade raw materials but also agricultural products with added value and their own presence in international trade.

A complementary theoretical axis involves Agriculture 4.0, understood as the integration of advanced digital technologies into agricultural processes, such as sensors,

cloud platforms, data analysis, robotics, and georeferencing systems (ECLAC, 2023). This vision holds that digitalization not only improves internal farm efficiency but also generates detailed information on the production process, which becomes an additional added value when competing in markets that demand traceability, sustainability, and specific certifications (Barbosa et al., 2021; ECLAC, 2023).

Critical approaches warn, however, that the adoption of Agriculture 4.0 in Latin America occurs in a context of strong asymmetries, where large companies and certain pioneer territories position themselves at the technological frontier, while small producers may be left behind in a sort of "digital neocolonialism" if technological inclusion policies are not implemented (Belaich, 2021). Nevertheless, there is a theoretical consensus that, if well-managed, the digitalization of agriculture can become a lever to diversify export offerings, develop data-associated services (monitoring, advisory, certification), and, consequently, increase the added value of Latin American agricultural exports (ECLAC, 2023).

Recent theory on agrifood chains incorporates blockchain technology as a strategic resource for traceability and value creation in agricultural production (Belaich, 2021; Borrero, 2019). This technology allows for the recording of every transaction and movement of a batch of products in a distributed and immutable database, guaranteeing the integrity of information on origin, production processes, logistics, and certifications, and generating trust in both buyers and final consumers (Gauna et al., 2021). Studies indicate that this detailed traceability becomes an especially relevant value-added attribute in segments such as organic products, fair trade, or denominations of origin, where transparency and the verification of sustainable practices constitute central competitive advantages (Belaich, 2021; Borrero, 2019). Empirical evidence shows that by combining blockchain with sensors and the Internet of Things (IoT), it is possible to track the full history of a food batch in seconds, reduce losses associated with product recalls, combat fraud, and strengthen the competitiveness of agro-industries participating in highly demanding international markets.

### **3. Methods**

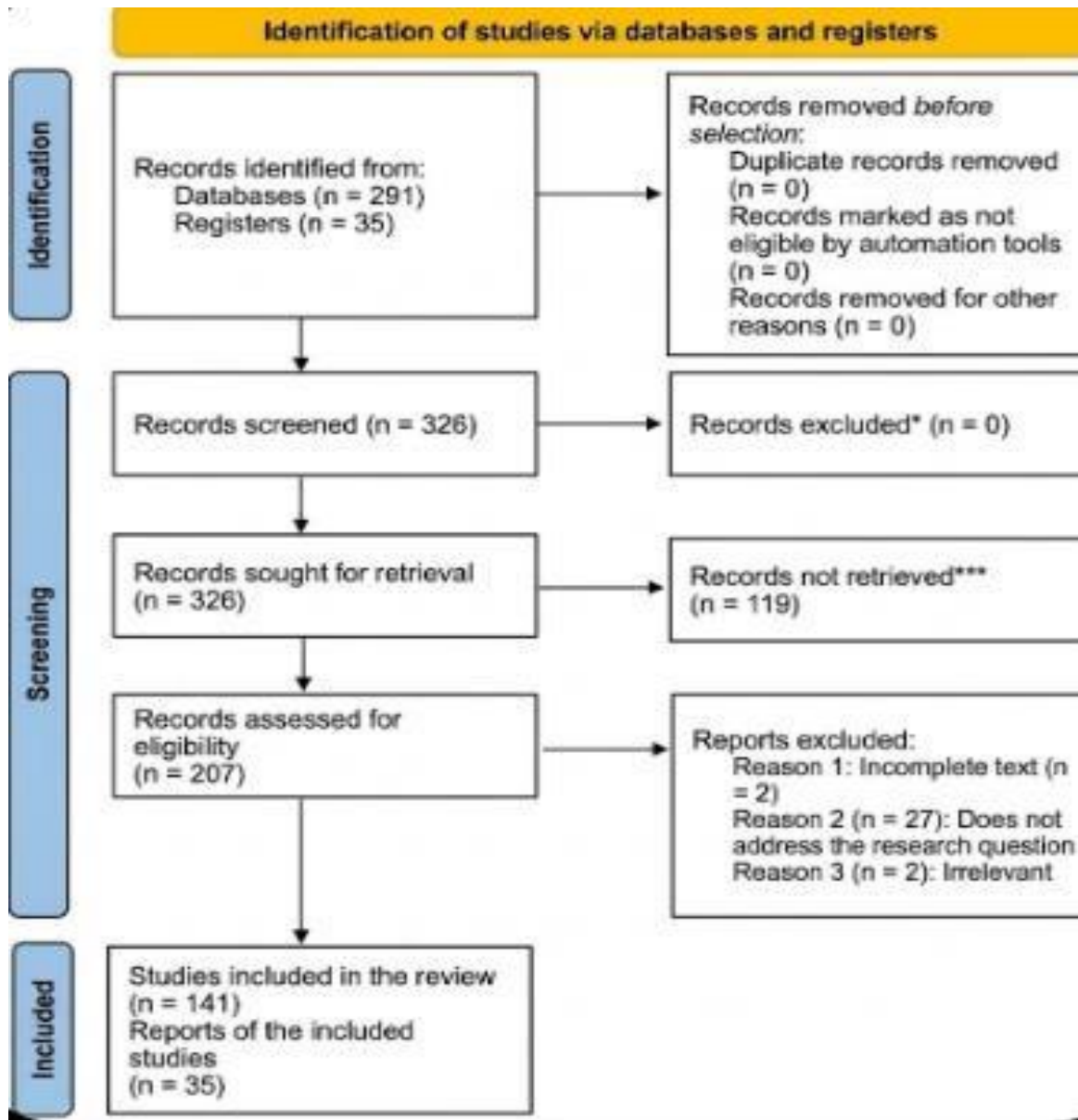
The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta- Analyses) methodology was employed for this study. The search focused exclusively on academic and technical works from the last decade (2016–2026) that addressed the agricultural reality in Latin America, specifically concerning export dependency, innovation, public policy, and value chains. Only full-text articles in English or Spanish were considered; those lacking a

robust methodology, duplicates, or those focused on regions outside the scope of study were excluded.

The search strategy was based on a primary query in English using the formula: ("Latin America") AND (Exports OR Export) AND (Agriculture OR Agricultural), which was adapted to different databases while maintaining the same combinatorial logic. The query applied the following selection criteria: (1) publication date (2016–2026)—by covering the last 10 years, according to Lawani and Ilegbedion (2024), the inclusion of recent and relevant data for the case study is ensured; (2) subject areas related to economics; (3)

international trade and agriculture; and (4) full-text availability. Studies meeting these criteria were categorized into several thematic modules for exhaustive analysis: trade and export structure; value addition and Global Value Chains (GVCs); the economic impact of primary product exports; and innovation and policies within the agricultural export sector.

**Figure 1**  
PRISMA Flowchart



\*\*Date different from that specified by the criteria.

\*\*\*Paid or subscription-based articles

During the review process, the initial results obtained from the various databases were recorded in an Excel spreadsheet, where duplicate documents, non-relevant articles, or those that did not meet the criteria were removed. Subsequently, defined quality criteria were applied based on a 5-point scale: documents with a score below 3.5 were excluded, while those with a higher score were included in the study. Titles and abstracts were then read sequentially, followed by the full text whenever possible, to verify the thematic relevance

and methodological robustness of each study. The selected works were finally organized into analytical categories consistent with the research objectives, facilitating the synthesis of available evidence regarding the international insertion of Latin American agro-exports with added value.

The qualification criteria included: (1) peer-review status; (2) impact level; (3) SJR (SCImago Journal Rank) ranking; (4) generalizability of results; and (5) replicability within the study; and finally, the level of utility regarding the research objectives. Consequently, only documents with a score equal to or greater than 3.5 were retained. Furthermore, the information was organized into tables created in Excel, using the following columns: (1) Authors; (2) Link; (3) Publisher; (4) Journal; (5) Language; (6) Duplicate; (7) Inaccessible/Removed; (8) Paid/Subscription Article; and (9) Research Question.

Subsequently, a narrative synthesis was performed, comparing similarities and differences across the studies and verifying that general conclusions remained consistent when considering only the highest-rated works.

No formal statistical tests were applied to detect publication bias or missing results; however, it is acknowledged that the review is limited to studies in English or Spanish with available full texts, thus recognizing the potential absence of unpublished or low-visibility works. To assess the level of confidence in the evidence, the quality scale score of each study, the consistency of findings across different sources, and the presence of similar results in different contexts and periods were considered jointly. Based on these elements, a distinction was made between robust conclusions supported by multiple high-rated studies and those to be understood as indicative or exploratory due to the limited quantity or quality of available literature.

For the lexicometric analysis, the Iramuteq tool (version 0.8a7) was applied. The Reinert method was used for word cluster analysis and similarity analysis. The Reinert method is employed in Descending Hierarchical Classification (DHC) and is considered a lexicometric technique that analyzes textual corpora to group text segments into classes based on vocabulary similarity. This method seeks to structure discourses by identifying word co- occurrences, dividing the text into units, and utilizing the chi-square test to organize thematic classes. Additionally, the lemmatization process was applied, which is a Natural Language Processing (NLP) technique that reduces inflected words (such as conjugated verbs and plurals) to their base form or "lemma," accounting for context and grammatical category.

## **4. Results and Discussion**

The following sections present the primary findings of the systematic literature review regarding the insertion of Latin American agricultural products into Global Value Chains (GVCs), as well as their contribution to value addition and the region's export competitiveness. Based on the compilation of the analyzed studies, the results of the lexicometric analysis are also presented. These results allow for the identification of the most frequently repeated core ideas, the co-occurrence relationships between key terms, and the thematic clusters that organize recent academic discourse surrounding agricultural exports in Latin America.

### **4.1 Detailed Analysis of the Results**

#### **4.1.1 Groups of Words**

The dendrogram presented in Figure 2 illustrates six main word clusters that synthesize the axes around which the reviewed literature is organized. In the first group, terms such as latin, meat, soy, commodities and value appear, referring to the analysis of primary products, value chains, and the dynamics of Latin American insertion into international agricultural markets, closely linked to global investment and trade patterns (Escalante Yaulilahua et al., 2022; UNCTAD, 2023). A second group gathers English terms such as agricultural, sector, and management, associated with studies addressing agricultural sector management and farm organization.

The third cluster is led by terms such as agricultural/livestock, innovation, process, knowledge, and technology. This suggests a block of research focused on innovation, sustainability, and the transformation of agricultural systems (Cáceres, 2015; Escalante Yaulilahua et al., 2022). The fourth group centers on advantage, competitiveness, indicator, and matrix. This cluster is dominated by studies seeking to measure and compare competitiveness through evaluation models and indicators.

In the fifth grouping, terms such as growth, panel (referring to panel data), export, price, balance, and remittance stand out, corresponding to econometric studies on the impact of agricultural exports on economic growth and external variables (Otero, 2010; UNCTAD, 2023). Finally, Ecuador leads the sixth group, which includes Ecuadorian shrimp and cocoa. This reflects a specific series of case studies focused on the country's export structure and its most representative products. Although each cluster has its own focus, the connections at the top of the dendrogram indicate that they are all interconnected, constituting a single field of study on competitiveness and agricultural exports in Latin America, with a specific emphasis

on the Ecuadorian case (Cáceres, 2015; Escalante Yaulilahua et al., 2022).

**Figure 2**  
*Dendrogram*

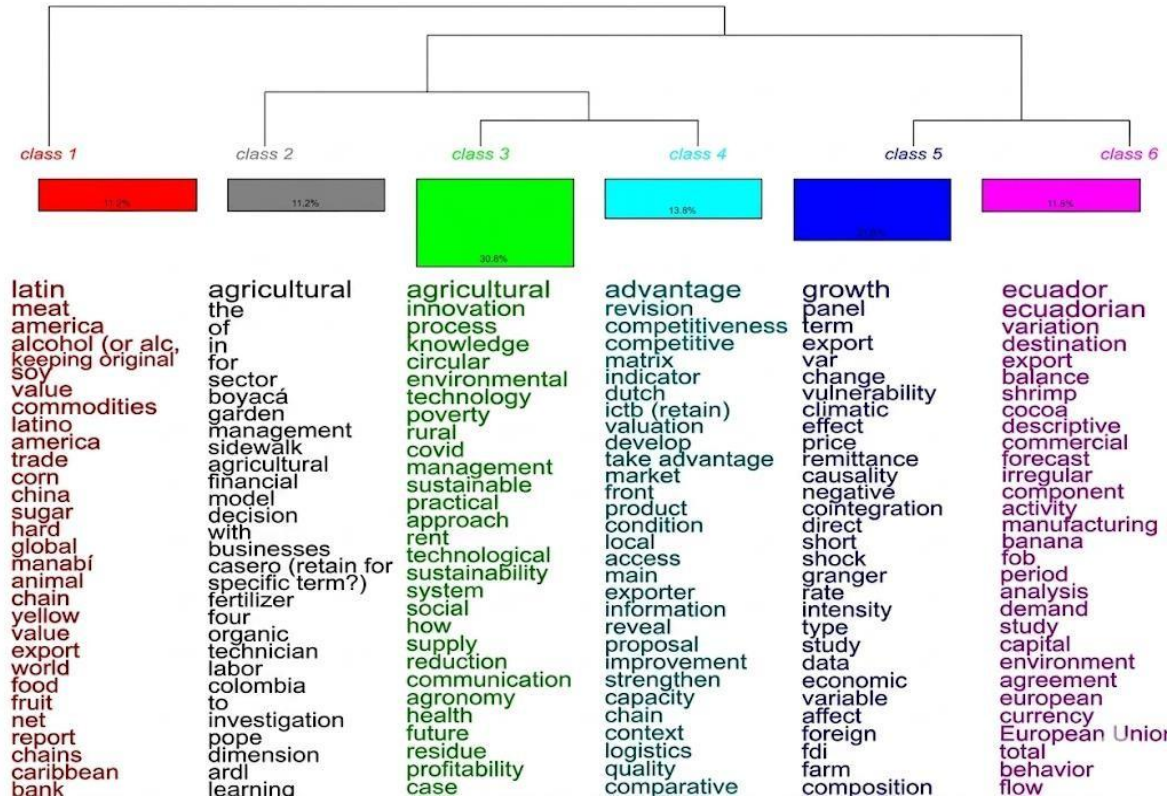
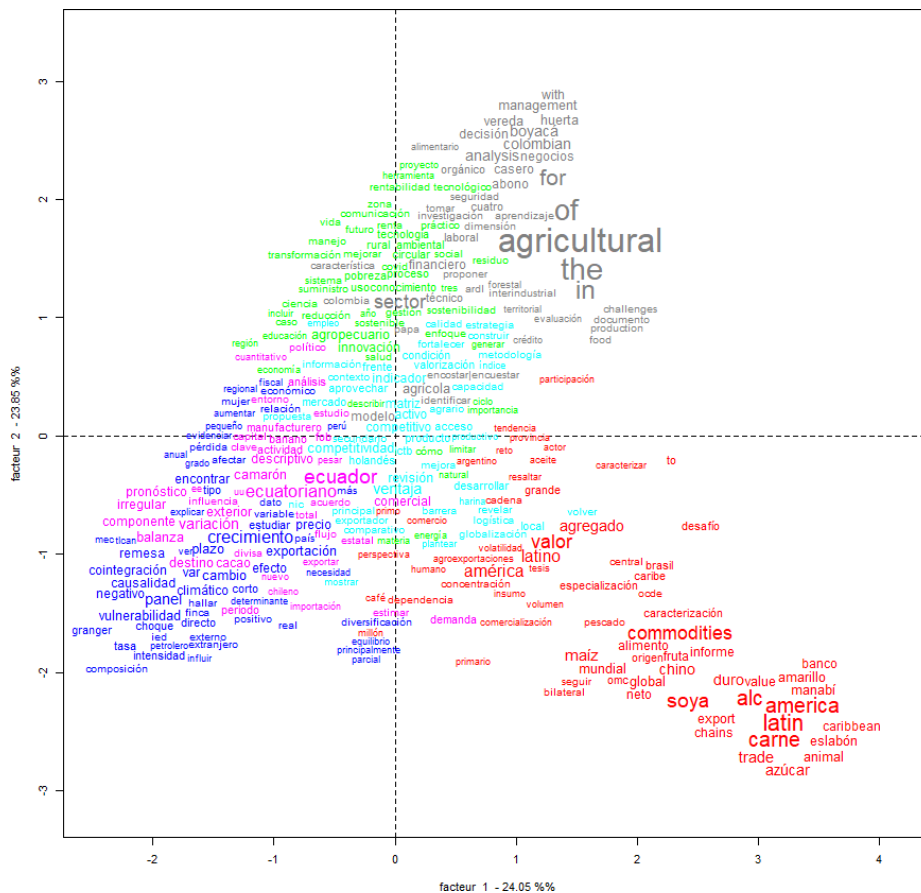


Figure 3 displays the factor loading plot, which visualizes the organization of the most frequent vocabulary within the analyzed literature across two primary axes. In the lower-right quadrant, terms such as commodities, soy, meat, and Latin America are clustered, representing the block of studies focused on Latin American agricultural commodities and their insertion into international trade. In contrast, the upper-right quadrant concentrates terms such as agricultural, sector, management, and decision, which are associated with research addressing the management and organization of the agricultural sector from a more business-oriented perspective.

**Figure 3**  
Factor Loading Analysis



Toward the central part of Figure 3, terms such as sector, agricultural, innovation, and rural appear, linking the discussion on productive modernization with the reality of rural territories and the processes of innovation and the processes of innovation and sustainability. On the left axis, particularly in the lower section, terms such as Ecuador, Ecuadorian, shrimp, cocoa, growth, balance, and export are located. These terms clearly identify the cluster of case studies applied to the Ecuadorian context and the analysis of the impact of agricultural exports on growth and external accounts. The dispersion and proximity of words in each quadrant collectively show that the literature combines three major focal points: the analysis of commodities on a regional scale, approaches to agricultural management and innovation, and specific empirical studies on competitiveness and export performance, with a particular emphasis on Ecuador (Dosch & Goodman, 2012; Koster et al., 2017).

### Cluster 1. Agricultural Commodities in Latin America

The first cluster identified in the lexicometric analysis groups terms such as Latin, carne (meat), soya (soy), commodities, and valor (value). This indicates that a significant

portion of recent studies focuses on Latin America's primary export products and their role within global agrifood trade. Generally, the region is described as a major net food exporter (Vargas, 2017), with an export basket dominated by soy and maize (Analuisa et al., 2022; Aroca, 2022), meats, cocoa (Universidad Nacional Mayor de San Marcos & Barrientos Felipa, 2015), shrimp, and fruits (Cedeño et al., 2019), the trade of which has grown steadily over the last few decades. These works agree that such agro-exports contribute significantly to GDP (Vargas & Rodríguez, 2017), foreign exchange generation, and the trade balance surplus (Vélez Osorio, 2023) in several countries, becoming one of the pillars of their economies.

At the same time, evidence shows that this specialization is based almost exclusively on the sale of agricultural raw materials with little to no processing. In terms of Global Value Chains (GVCs), this means that Latin America is situated in the most basic segments, centered on primary production and, in some cases, initial processing (Analuisa et al., 2022; Universidad Nacional Mayor de San Marcos & Barrientos Felipa, 2015). In contrast, higher value-added activities—such as (1) advanced transformation (Universidad de Caldas et al., 2017), (2) product design (Encalada Añazco et al., 2021), (3) logistics services (Vásquez Bernal & Tonon Ordóñez, 2021), (4) branding (Encalada Añazco et al., 2021), and (5) certifications (Guardado Yordi et al., 2024)—are concentrated in more developed economies such as the United States, China, and the European Union. In practice, Latin American countries capture only a fraction of the final value of food reaching the consumer (Guardado Yordi et al., 2024), despite bearing much of the productive and environmental risks associated with extensive agriculture.

The heavy presence of agricultural products also entails high exposure to global price instability and variations in demand from major buyers. When prices are high, exports yield temporary increases in tax revenue and income (Moreno-Alemay & Pereira-Villa, 2015).

However, these periods of prosperity do not automatically translate into processes of productive diversification or advancement toward technology-intensive activities.

Conversely, when facing price drops or geopolitical shifts, nations that rely heavily on raw materials suffer a deterioration in their terms of trade and encounter greater difficulties in maintaining economic expansion (Moreno-Alemay & Pereira-Villa, 2015).

Furthermore, this primary-export pattern has social and territorial effects. The expansion of large agro-export complexes tends to reinforce historical structures of economic concentration, where a few actors control access to markets, financing, and technology (Guardado Yordi et al., 2024; Vélez Osorio, 2023). In contrast, small and medium producers

often remain in the peripheral links of the chains, with low bargaining power and little room to capture added value (Andrade-Rodas & Salomón, 2017). Various case studies (Paz, 2018) on chains such as cocoa, passion fruit, or honey indicate that, without development policies, adequate financing, or associative schemes, these producers participate solely as raw material suppliers.

## **Cluster 2. Agricultural Exports in Latin America**

In the context of global agrifood trade, Latin America has established itself as one of the primary actors in world food security (Aroca, 2022; Encalada Añazco et al., 2021), prioritizing its production in soy, maize, meat, cocoa, coffee, tropical fruits, and shrimp.

Several studies indicate that these agricultural exports contribute significantly to job creation (Toro Espinosa & Cueva Jiménez, 2024), GDP (Mejía Guerra, 2021), and the generation of foreign exchange for the region's countries (Pesantez Cedeño et al., 2021). Furthermore, they constitute one of the main sources of external income and align with the Sustainable Development Goals (OECD et al., 2025). This export dynamism has benefited from demand in major markets such as China, which—due to various geographical and social factors—relies on agrifood products (Mejía Guerra, 2021); other examples include the European Union and the United States, which have increased their acquisition of food and raw materials from Latin America (Escalante Yaulilahua et al., 2022).

The dominant pattern remains the sale of products in their basic state or with a low level of transformation (Cedeño et al., 2019; Maya Muñoz, 2025), which keeps the region in low-value-added positions within Global Value Chains (GVCs). Most trade is concentrated in standardized agricultural commodities, subject to intense price competition and high volatility in international markets (Moreno-Alemay & Pereira-Villa, 2015). This situation limits the capacity of Latin American countries to capture a greater share of the products' final value and reduces the margin for developing more complex agro-industries with higher technological and innovative content (Maya Muñoz, 2025).

This export structure results in an intense dependency on external conditions and price cycles, complicating the achievement of sustained growth (Escandón et al., 2014) and long-term investment planning. Simultaneously, internal disparities persist: small and medium-sized producers face hurdles in accessing marketing channels, technology, financing, and certifications, which restricts their participation in the most lucrative segments of international trade (Cedeño et al., 2019). Within this framework, this thesis contends that the primary challenge is not merely increasing export volume, but rather advancing toward a

model in which Latin American agricultural exports incorporate more transformation, differentiation, and sustainability processes (Guardado Yordi et al., 2024). This would allow the region to move beyond a near-total reliance on raw materials and achieve a more robust international insertion.

### **Cluster 3. Innovation in Agricultural Processes**

#### Academic Translation: Innovation and Agriculture 4.0

In Latin America, agricultural innovation is linked to two major objectives: (1) enhancing export competitiveness (Escalante Yaulilahua et al., 2022) and (2) ensuring long-term sustainability (Cáceres, 2015; Tello, 2015). The FAO, the Organisation for Economic Co-operation and Development (OECD), and the World Bank agree that for producers to adopt more efficient methods and enter markets with increasing quality requirements, Latin American countries must invest resources in research, technological development, infrastructure, and workforce training (Serna M., 2020). The region faces the risk of persisting with extensive agriculture—characterized by high land use (Tello, 2015) and low value-added (Cáceres, 2015)—which perpetuates dependency on raw materials if the necessary innovations to move beyond traditional agriculture are not implemented (Tello, 2015).

Agriculture 4.0, which incorporates advanced technological innovations across different stages of agricultural and livestock production, plays a pivotal role in this process (Serna M., 2020). The integration of data analysis tools, cloud platforms, geographic information systems (GIS), new spatial utilization methods, and sensors facilitates real-time monitoring of factors such as soil condition, water levels, crops, and climate (Borrero, 2019). This contributes to optimizing input use and reducing losses (Simarro, 2018). When competing in markets that demand traceability, sustainability certifications, or verifiable evidence of Good Agricultural Practices (GAP), this detailed information provides significant added value (Escalante Yaulilahua et al., 2022).

However, access to these innovations is not universal. Established corporations and specific territories with more advanced infrastructure generally operate at the technological frontier (Cáceres, 2015). Conversely, small and medium-sized producers face obstacles related to investment costs (Alvarado-Pacaya et al., 2024), lack of connectivity (Tello, 2015), limited technical capacities (Cáceres, 2015), and difficulties in accessing credit (Barajas Ramírez, 2019). These elements become factors that widen existing disparities (Cáceres, 2015), creating new forms of inequality between those who benefit from emerging

technologies and those who are left behind (Tello, 2015).

#### **Cluster 4. Competitive Advantage in the Agricultural Sector**

Agricultural producers achieve a competitive advantage by combining natural resources, productive capacities, institutional frameworks, and market differentiation strategies (Durán Quirós et al., 2018). Latin American countries possess favorable climates, diverse ecosystems, and fertile land; this combination enables the production of soy, beef, cocoa, coffee, tropical fruits, and shrimp. However, these factors alone do not guarantee a strong and lasting position in global trade. International markets are characterized by massive competition (Escalante Yaulilahua et al., 2022), increasing quality demands, and shifting consumer preferences (Encalada Añazco et al., 2021). Consequently, natural factors are insufficient to secure a global standing.

The reviewed literature demonstrates that agricultural competitiveness no longer depends solely on low production costs or abundant resources. In this context, critical factors include: (1) traceability (Vinajera-Zamora et al., 2023), (2) international certifications (Guardado Yordi et al., 2024), and (3) compliance with phytosanitary standards (Alvarado-Pacaya et al., 2024). These rigorous processes lead to the creation of brands associated with the reputation and origin of the producing countries. These traits allow certain Latin American products—such as certified farmed shrimp (Taco-Lambert & Pizarro-Romero, 2023), specialty coffee, or fine-flavor cocoa (cacao fino de aroma) (Universidad Nacional Mayor de San Marcos & Barrientos Felipa, 2015)—to compete in premium market segments. In these segments, competition is not based on quantity alone (Encalada Añazco et al., 2021). Nevertheless, marked imbalances persist within the sector (Cedeño et al., 2019).

Large corporations and the strongest export groups typically monopolize advantages such as: (1) superior technology (Cáceres, 2015), (2) easier access to credit (Andrade-Rodas & Salomón, 2017), (3) up-to-date market intelligence (Mejía Guerra, 2021), and (4) robust management teams (Durán Quirós et al., 2018). In contrast, small and medium-sized producers constantly face seemingly insurmountable obstacles: (1) meeting quality standards (Alvarado-Pacaya et al., 2024), (2) securing liquidity for infrastructure investment (Trujillo-Sandoval et al., 2021), or (3) obtaining the certifications required by international buyers (Pacheco Fernández & Landa De Saá, 2016).

As a result, many farmers remain at the bottom of the value chain (Cedeño et al., 2019), trading raw materials at cost price (Tello, 2015) without achieving differentiation or adding value (Vinajera-Zamora et al., 2023). Ultimately, this gap undermines the region's overall

competitiveness (Murguía, 2021) by maintaining a productive fabric that is divided, unequal, and less efficient than it could be. Competitive advantage in Latin American agriculture arises from the synergy between natural conditions and the capacity to innovate, collaborate, and upgrade within value chains, moving beyond the traditional regional commodity markets (Lara Rodríguez et al., 2018).

To consolidate this advantage, public policies are required to promote: (1) production diversification (Tello, 2015), (2) technological innovation (Serna M., 2020), (3) support for small and medium-sized producers (Guardado Yordi et al., 2024), and (4) the development of strategies that highlight origin and sustainability (Vélez Osorio, 2023). In this way, the region can advance through innovation, leaving behind competitiveness based solely on natural resources and building a new model supported by knowledge, organization, and added value (Lara Rodríguez et al., 2018; Maya Muñoz, 2025).

### **Cluster 5. Industry Growth**

For Latin America, agricultural exports have historically contributed to economic growth and increased external revenue. Despite these benefits, this reliance reveals a structural vulnerability; growth remains fragile when it depends almost exclusively on raw material sales and high global prices. Most of the region competes based on price, often being forced to lower them to remain competitive (Maya Muñoz, 2025; Moreno-Alemay & Pereira- Villa, 2015; Tello, 2015). Consequently, when global prices fall, the momentum toward economic growth diminishes rapidly, failing to sustain a solid productive base within the country.

The Ecuadorian agricultural sector stands as one of the nation's most productive areas, driving economic growth. According to 2025 national accounts data, activities such as agriculture and livestock outperformed the rest of the economy, acting as a catalyst for the food processing and logistics sectors. This creates a "chain reaction": when the rural sector thrives, commerce and industry follow. However, the Central Bank warns against complacency, as this success is heavily contingent on favorable international prices—a persistent risk (Central Bank of Ecuador, 2025).

National statistical data clarify that, despite increasing export volumes, fundamental production issues remain. Data from INEC and the Ministry of Agriculture show that while the rural sector is vital for GDP and rural employment, it lags behind other industries in technology and infrastructure (National Institute of Statistics and Censuses [INEC], 2023; Ministry of Agriculture and Livestock [MAG], 2024). Therefore, merely increasing raw

material cultivation is insufficient; the key lies in investing in logistics and processing facilities. Only then can the sector overcome the limitations that currently hinder its progress (INEC, 2023; MAG, 2024).

Accordingly, it is recommended that new investment loans or existing profits be directed toward optimizing infrastructure, supporting the industrial sector, and fostering greater transformation of agricultural products (Serna M., 2020; Vinajera-Zamora et al., 2023). The objective is for exports not only to increase in volume but also to contribute to the establishment of sophisticated firms, services, and production chains valued by new potential markets. This shift would generate stable employment and higher value-added (Alex Grau Acosta et al., 2023; Guardado Yordi et al., 2024).

### **Cluster 6. Ecuadorian Context**

In the Ecuadorian context, agricultural exports have become a cornerstone of the economy (Taco-Lambert & Pizarro-Romero, 2023), particularly through products such as shrimp, cocoa, bananas, and other tropical fruits, which are highly valued in major markets like the United States and China for their quality (Acosta-Ascuntar et al., 2024; Alex Grau Acosta et al., 2023). These goods are among the country's top exports and contribute significantly to foreign exchange generation, rural employment, and a positive trade balance. Ecuador emerges as a distinct group within the lexicometric clusters, directly associated with terms such as shrimp, cocoa, growth, balance, and export, highlighting the country's consistent presence in case studies regarding Latin American agro-exports (Mejía Guerra, 2021).

At the same time, this export pattern reproduces several of the aforementioned regional issues. A significant portion of production is still traded in its raw state, primarily due to the long-standing tradition of exporting in this manner, which limits the development of value-added products within the country (Escandón et al., 2014; Maya Muñoz, 2025).

Although there have been advances in chains such as fine-flavor cocoa and certified shrimp, small and medium-sized producers face difficulties in accessing credit, technology, infrastructure, and quality certifications, reducing their opportunities to enter more profitable international market segments (Trujillo-Sandoval et al., 2021). These gaps result in the concentration of benefits within the strongest links of the chain, while primary producers remain dependent on selling raw materials at relatively low prices (Vinajera-Zamora et al., 2023).

In this scenario, the challenge for Ecuador is to better leverage its position as an

agricultural exporter to drive activities with greater transformation, differentiation, and long-term sustainability (Serna M., 2020). This entails strengthening the organization of Latin American producers, improving domestic logistics, promoting process and product innovation, and obtaining certifications that allow products such as cocoa, coffee, and fruits to be differentiated by their quality and origin. In doing so, Ecuador would have the opportunity to transition gradually from a role focused on raw material exports to one where exports incorporate more added value and generate a deeper impact, enhancing the reputation of the country of origin (Acosta-Ascuntar et al., 2024).

#### **4.1.2 Similarity Analysis**

The word *exportación* (export) is positioned at the center of the co-occurrence graph (Figure 4), confirming that the analyzed literature primarily focuses on investigating agricultural and livestock exports within the region. From this central node, connections originate toward terms such as *América Latina*, *crecimiento* (growth), and *económico* (economic), which demonstrate how various authors link export performance to macroeconomic outcomes and the role of the agricultural sector within Latin American economies.





(3) empirical studies on competitiveness and export performance, with a specific focus on the Ecuadorian case (Dosch & Goodman, 2012; Koster et al., 2017).

The literature review reveals that the majority of documents concerning the primary commodity agro-export sector in Latin America focus on quantitative foreign trade indicators—such as export volumes, prices, trade balances, and market share—particularly surrounding commodities like soy, beef, cocoa, and shrimp. While these studies quantify the economic significance of agricultural exports for Latin American nations and their contribution to GDP and foreign exchange generation, they simultaneously highlight a lack of focus on the structural problem of commodity dependence and its long-term implications for economic, social, and environmental sustainability.

A significant finding is the difficulty in locating studies that address the complete cycle of commodity dependence; that is, research that articulates the historical origins of this model, Global Value Chain (GVC) analysis, environmental and social impacts, and specific proposals for transitioning toward more sustainable frameworks. There is an abundance of articles addressing one or two of these components in isolation (e.g., technological innovation or export competitiveness), but research that simultaneously integrates the durability of the agro-export model, sustainability, and value addition is scarce. This fragmentation limits the ability to draw robust conclusions regarding the long-term effects of the current international insertion pattern and the conditions required for its transformation.

The search process identified several methodological limitations. First, constructing a search string capable of capturing the full scope of the problem was complex; the most prominent descriptors in databases (*exports, agriculture, trade, competitiveness*) primarily lead to economic and commercial studies. In contrast, works on structural dependence, sustainability, or agroecological transition are scattered and often employ heterogeneous terminology. Second, many studies repeated similar theoretical frameworks or analyzed identical indicators, necessitating strict quality and relevance criteria to avoid bias from the overrepresentation of certain approaches. Finally, the decision to limit the review to full-access texts in English and Spanish from the 2016–2026 period may have excluded relevant contributions in other languages or non-indexed literature.

Despite these limitations, the review results open several avenues for future research. On one hand, an agenda that explicitly links commodity dependence with the sustainability of agrifood systems is required, incorporating indicators for environmental footprint, resilience, and vulnerability to climate change. On the other hand, there are opportunities to

deepen case studies on sustainable value-added strategies—such as certifications, origin narratives, Agriculture 4.0, or AgTech innovations—evaluating not only their commercial impact but also their contribution to long-term sustainability.

## **5. Limitations of the Study**

Upon analyzing the results, several significant limitations of this study must be considered. First, locating research that simultaneously addresses commodity dependence, global value chains (GVCs), innovation, and sustainability proved to be a major challenge. Consequently, this review primarily relied on studies that analyze these topics in isolation, which limits the ability to provide a fully integrated perspective of the phenomenon.

Second, the review did not include research in Portuguese, despite the abundance of academic literature regarding agricultural exports and value addition in Brazil. Incorporating these sources in future research would enrich the findings

## **6. Conclusions**

Based on the evidence gathered in this systematic literature review, it is concluded that Latin American agricultural exports—primarily focused on commodities such as meat, shrimp, soy, and cocoa—serve as a fundamental source of income and foreign exchange generation. However, this focus keeps the region stagnant in segments with low added value within Global Value Chains (GVCs).

Regarding the first specific objective—analyzing global economic trends and the international agrifood trade context—this study reveals that while exports have increased and strengthened the sector's contribution to GDP and the trade balance, this primary-export model remains highly susceptible to price volatility and does not guarantee sustainable long-term growth.

Regarding the second objective—examining the functioning and structure of agro-industrial GVCs and identifying factors determining value addition—the literature analysis indicates that Latin America is mostly positioned in the initial stages of basic processing and primary production. Conversely, high-value functions (branding, advanced transformation, services, and platforms) are primarily located outside the region, which significantly limits the potential for capturing added value.

Regarding the third objective—evaluating the role of technological innovation and public policy in strengthening competitiveness and sustainability—there is a clear absence of robust policies and consistent incentives for technological innovation in the agricultural

sector. Furthermore, gaps remain in the linkage between innovation systems, public policies, and productive modernization.

Finally, in accordance with the fourth objective—proposing strategies to support small and medium-sized producers in overcoming technological, financial, and market access barriers—the results demonstrate that these producers face significant hurdles. However, the evidence also shows that high-quality products—such as Ecuadorian shrimp and cocoa—offer opportunities for strategies based on origin differentiation, associativity, and value addition, enabling a more durable and inclusive insertion into global markets.

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