


**ANALYSIS OF CONCEPTUAL DEFINITIONS OF AGRIBUSINESS USING THE
CONCEPTUAL BIBLIOGRAPHIC METHOD**

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 01 September 2023</p> <p>Accepted 14 December 2023</p>	<p>Purpose: Agribusiness is a phenomenon of interest to science from several aspects, and this multiplicity of aspects taken simultaneously is a new way of trying to understand and explain it. Specific, unidisciplinary studies still predominate on a single element of agribusiness, such as finance, marketing, and production, among countless others. However, the trend is towards multifactorial studies because agribusiness is a phenomenon that cannot be classified solely as industry, commerce, or service or as a primary, secondary, or tertiary sector. Consolidated agribusiness is all of these things simultaneously, whose reality is delimited by science based on its conceptual definitions. Therefore, the definitions must be analyzed so that the current stage of scientific knowledge about the phenomenon can be understood, especially its limits, characteristics, and dynamics, which are the purposes of this study.</p>
<p>Keywords:</p> <p>Agribusiness; Agribusiness Attributes; Agribusiness Approaches; Agribusiness Dynamics; Conceptual Bibliographic Method.</p>	<p>Theoretical Structure: The theoretical architecture of this study consisted of seeking to understand the phenomenon of agribusiness with socio-economic development, which is its most evident externality. It was carried out interdisciplinary, highlighting its integral reality based on what appears and can be identified in the conceptual definitions available in scientific publications. The justification for this procedure was the need to understand agribusiness from multiple scientific views so that its various aspects could be understood.</p>
	<p>Design/Methodology/Approach: This study aimed to analyze the conceptual definitions of agribusiness in the scientific literature in studies published between 2015 and 2023. To this end, it established three guiding questions, which sought to identify the frontiers of knowledge about the phenomenon, its main attributes, and what logical scheme it is possible to find among its main defining characteristics. For this, the conceptual bibliographic method was used, which consists of formulating a problem and its breakdown into a response pattern, collecting data in scientific databases, organizing and analyzing data based on semantic resources, and generating responses from the diagrammatic layout of the data organization.</p>
	<p>Findings: The results showed the existence of nine approaches to agribusiness (set, sum, activity, science, practice, configuration, industry, process, and transformation) and eight groups of attributes (transnational activities, commercialization, distribution logistics, supply logistics, companies, production, services, and agroecosystem). These discoveries allowed us to understand that agribusiness has an evolutionary dynamic that begins with the professionalization of the rural output and culminates with the irradiation of the reach of this production to transnational borders.</p>

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Research, Practical, and Social Implications: These findings fundamentally affect how agribusiness is viewed. In Brazil, in particular, the prevalent mentality tends to distinguish agribusiness as a unique and exclusive form of large rural enterprises, almost all of which are already globalized, excluding small enterprises from this coverage, almost always classified as family farming. Suppose the family farmer establishes himself as an enterprise. In that case, he often receives the entire discriminatory range intended for the large agribusiness enterprise, discouraging his professionalization, an essential corollary of the germ of agribusiness. Professionalization involves replacing improvised methods of producing and managing the enterprise with rational aspects originating from science and introducing scientifically subsidized techniques and technologies.

Originality/Value: The main contribution of this study to science was the construction of an evolutionary dynamic of agribusiness, which begins with the professionalization of rural production and culminates with globalization. These findings suggest that the family farming stage needs to be broken so that the benefits of professionalization can lead to improved quality of life and desired socioeconomic development for producers and partners.

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ANÁLISE DAS DEFINIÇÕES CONCEITUAIS DE AGRONEGÓCIO COM O USO DO MÉTODO BIBLIOGRÁFICO CONCEITUAL

RESUMO

Propósito: O agronegócio é um fenômeno de interesse da ciência sob vários aspectos e essa multiplicidade de aspectos tomados simultaneamente é uma nova maneira de tentar compreendê-lo e explicá-lo. Evidentemente que ainda predominam estudos específicos, unidisciplinares, sobre um único aspecto do agronegócio, como finanças, marketing e produção, dentre inúmeros outros. Mas a tendência é de estudos multifatoriais porque esse o agronegócio é fenômeno incapaz de ser enquadrado apenas em indústria, comércio ou serviço ou setor primário, secundário e terciário. O agronegócio consolidado é tudo isso simultaneamente, cuja realidade é delimitada pela ciência a partir das suas definições conceituais. Dessa forma, é necessário que as definições sejam analisadas para que se possa compreender o estágio atual do conhecimento científico sobre o fenômeno, especialmente seus limites, características e dinâmica, finalidades deste estudo.

Estrutura Teórica: A arquitetura teórica desse estudo consistiu na busca de compreensão do fenômeno do agronegócio com o desenvolvimento socioeconômico, que se configura em sua externalidade mais evidente. Foi feita de forma interdisciplinar, procurando-se destacar sua realidade integral a partir do que aparece e se pode identificar nas definições conceituais disponíveis nas publicações científicas. A justificativa desse procedimento foi a necessidade de se compreender o agronegócio a partir das múltiplas visões científicas para que se pudessem apreender seus múltiplos aspectos.

Desenho/Metodologia/Abordagem: Este estudo teve como objetivo analisar as definições conceituais de agronegócio contidas na literatura científica nos estudos publicados entre os anos 2015 e 2023. Para isso, estabeleceu três questões norteadoras, que procuraram identificar as fronteiras do conhecimento sobre o fenômeno, os seus principais atributos e que esquema lógico é possível encontrar dentre as suas principais características definidoras. Para isso, foi utilizado o método bibliográfico conceitual, que consiste na formulação de um problema e seu desdobramento em padrão de resposta, coleta de dados em bases científicas de dados, organização e análise dos dados com base em recursos semânticos e geração das respostas a partir da esquematização diagramática da organização dos dados.

Achados: Os resultados mostraram a existência de nove abordagens sobre agronegócios (conjunto, soma, atividade, ciência, prática, configuração, indústria, processo e transformação) e oito grupos de atributos (atividades transnacionais, comercialização, logística de distribuição, logística de suprimento, empresas, produção, serviços e agroecossistema). Essas descobertas permitiram compreender que o agronegócio tem uma dinâmica evolutiva que começa com a profissionalização da produção rural e culmina com a irradiação do alcance dessa produção para fronteiras transnacionais.

Pesquisa, Implicações Práticas e Sociais: Essas descobertas têm implicações fundamentais para a forma como o agronegócio é visto. No Brasil, em particular, a mentalidade popular tende a distinguir o agronegócio como forma única e exclusiva de grandes empreendimentos rurais, quase todos já globalizados, descartando dessa cobertura os pequenos empreendimentos, quase sempre classificados como agricultura familiar. Se o agricultor familiar se constitui como empreendimento, muitas vezes recebe toda a gama discriminatória destinada ao grande

empreendimento do agronegócio, o que desestimula a sua profissionalização, corolário essencial do germen do agronegócio. A profissionalização constitui na substituição das modalidades improvisadas de produzir e gerenciar o empreendimento por aspectos racionais, oriundas da ciência, com a introdução de técnicas e tecnologias subsidiadas cientificamente.

Originalidade/Valor: A principal contribuição desse estudo para a ciência foi a construção de uma dinâmica evolutiva do agronegócio, que inicia com a profissionalização da produção rural e culmina com a globalização. Esses achados sugerem que o estágio de agricultura familiar precisa ser quebrado para que os benefícios da profissionalização possam levar aos produtores e parceiros a melhoria da qualidade de vida e o desenvolvimento socioeconômico desejados.

Palavras-chave: Agronegócio, Atributos do Agronegócio, Abordagens do Agronegócio, Dinâmica do Agronegócio, Método Bibliográfico Conceitual.

ANÁLISIS DE DEFINICIONES CONCEPTUALES DE AGRONEGOCIO MEDIANTE EL MÉTODO BIBLIOGRÁFICO CONCEPTUAL

RESUMEN

Propósito: Los agronegocios son un fenómeno de interés para la ciencia desde varios aspectos y esta multiplicidad de aspectos tomados simultáneamente es una nueva forma de intentar comprenderlo y explicarlo. Evidentemente, todavía predominan los estudios específicos y unidisciplinarios sobre un solo aspecto de los agronegocios, como las finanzas, el marketing y la producción, entre muchos otros. Pero la tendencia es hacia estudios multifactoriales porque el agronegocio es un fenómeno que no puede clasificarse únicamente como industria, comercio o servicios ni como sector primario, secundario y terciario. El agronegocio consolidado es todo eso simultáneamente, cuya realidad es delimitada por la ciencia a partir de sus definiciones conceptuales. Por lo tanto, es necesario que las definiciones sean analizadas para que se pueda comprender el estado actual del conocimiento científico sobre el fenómeno, especialmente sus límites, características y dinámica, que son los propósitos de este estudio.

Estructura Teórica: La arquitectura teórica de este estudio consistió en buscar comprender el fenómeno de los agronegocios con el desarrollo socioeconómico, que es su externalidad más evidente. Se realizó de manera interdisciplinaria, buscando resaltar su realidad integral a partir de lo que aparece y puede identificarse en las definiciones conceptuales disponibles en las publicaciones científicas. La justificación de este procedimiento fue la necesidad de entender los agronegocios desde múltiples puntos de vista científicos para que se pudieran entender sus múltiples aspectos.

Diseño/Metodología/Enfoque: Este estudio tuvo como objetivo analizar las definiciones conceptuales de agronegocios contenidas en la literatura científica en estudios publicados entre los años 2015 y 2023. Para ello, estableció tres preguntas orientadoras, que buscaron identificar las fronteras del conocimiento sobre el fenómeno, sus principales atributos y qué esquema lógico es posible encontrar entre sus principales características definitorias. Para ello se utilizó el método bibliográfico conceptual, que consiste en formular un problema y su desglose en un patrón de respuesta, recolectar datos en bases de datos científicas, organizar y analizar datos con base en recursos semánticos y generar respuestas a partir del trazado esquemático de la organización de datos. .

Hallazgos: Los resultados mostraron la existencia de nueve enfoques de los agronegocios (conjunto, suma, actividad, ciencia, práctica, configuración, industria, proceso y transformación) y ocho grupos de atributos (actividades transnacionales, comercialización, logística de distribución, logística de abastecimiento, empresas, producción, servicios y agroecosistema). Estos descubrimientos permitieron comprender que el agronegocio tiene una dinámica evolutiva que comienza con la profesionalización de la producción rural y culmina con la irradiación del alcance de esta producción hacia las fronteras transnacionales.

Implicaciones de Investigación, Prácticas y Sociales: Estos hallazgos tienen implicaciones fundamentales sobre cómo se ve la agroindustria. En Brasil, en particular, la mentalidad popular tiende a distinguir el agronegocio como una forma única y exclusiva de grandes empresas rurales, casi todas ya globalizadas, excluyendo de esta cobertura a las pequeñas empresas, casi siempre clasificadas como agricultura familiar. Si el agricultor familiar se constituye como empresa, muchas veces recibe toda la gama discriminatoria destinada a la gran empresa agroindustrial, lo que desalienta su profesionalización, corolario esencial del germen del agronegocio. La profesionalización implica sustituir métodos improvisados de producción y gestión de la empresa por aspectos racionales, provenientes de la ciencia, con la introducción de técnicas y tecnologías científicamente subvencionadas.

Originalidad/Valor: El principal aporte de este estudio a la ciencia fue la construcción de una dinámica evolutiva de los agronegocios, que comienza con la profesionalización de la producción rural y culmina con la globalización. Estos hallazgos sugieren que es necesario romper la etapa de agricultura familiar para que los beneficios de la profesionalización puedan conducir a una mejor calidad de vida y el desarrollo socioeconómico deseado para los productores y socios.

Palabras clave: Agronegocios, Atributos del Agronegocio, Enfoques de Agronegocios, Dinámica de los Agronegocios, Método Bibliográfico Conceptual.

INTRODUCTION

Until recently, organizations were part of three types of economic activities (industry, commerce, and services), as in studies by Mesquita et al. (2023) and Douis and Ahmia (2023), components of three economic sectors (Herrera-Pérez et al., 2023; Bergougui & Murshed, 2023; Ennaji, 2023; Marx et al., 2022), as if reality could be fragmented and its contours separated. Naturally, this was and continues to be a way of seeing and explaining organizational and economic facts and phenomena, albeit less frequently. Reality seems much more complex than the human capacity to find regularities and establish typologies. Typologies and delimitations are necessary in all areas of knowledge (Umar, 2023; Mayberry et al., 2023; Roche et al., 2022; Menon, 2022; Osugi et al., 2022) because they help scientists go beyond these boundaries and create new regularities to, once again, be undone and rebuilt in an incessant process, which constitutes and underlies scientific discoveries and their most visible development, technology. Just as typologies are updated, state-of-the-art configurations need to be constantly remade.

Agribusiness is a phenomenon of interest to science from several aspects (Genhua, 2023; Xavier & Reis, 2022; Arkeman et al., 2022; Kailaku & Djatna, 2022), and this diversity of aspects taken simultaneously is a new way of trying to understand it and explain it. Specific, unidisciplinary studies still predominate on a single aspect of agribusiness, such as finance (Antipin & Tyapkina, 2023; Zuana & Ibad, 2023), marketing (Tolinggi et al., 2023; Herlianto et al., 2023) and production (El-Deeb et al., 2023; Meena et al., 2023), among countless others. However, the tendency is towards multifactorial studies because this phenomenon cannot be classified into a single type of economic activity or a single economic sector. Most agribusinesses comprise production units that produce (are industries) and sell (are commerce) their products. Many of them produce knowledge (they are scientific industries), generate technologies (they are technological industries), and provide consultancy services on these specialties (they are service providers). The typology of primary (agriculture), secondary (industry), and tertiary (services) sectors no longer makes sense for agribusiness. Consolidated agribusiness is all of these things simultaneously.

In this sense, this study aimed to analyze the conceptual definitions of agribusiness in the scientific literature in studies published between 2015 and 2023. To this end, it established

three guiding questions, which sought to identify the frontiers of knowledge about the phenomenon, its main attributes, and what logical scheme it is possible to find among its main defining characteristics. The conceptual bibliographic method was used (Nascimento-e-Silva, 2012, 2020; 2021a; 2021b; 2021c; 2023), which consists of formulating a problem and its breakdown into a response pattern, collecting data in scientific databases, organization, and analysis of data based-on semantic resources and generation of responses based on the diagrammatic schematization of data organization.

LITERATURE REVIEW

Agribusiness is a force that transforms realities. Everywhere in every country where it has settled and progressed, it has demonstrated transformations in the various aspects of associated human life and the environment. In this review, we seek to understand the socioeconomic impact of agribusiness based on the reports of scientific studies published between 2022 and 2023, organized by country, available in the Google Scholar database.

The study by Khlystun (2019) describes the results and consequences of land and agrarian reforms in Russia and proposes guidelines to improve land policy in that country. It shows that the current land policy generates uncertainty and gives rise to several criticisms regarding its weak commitment to the country's socioeconomic development. This is because tiny agribusinesses have been left unassisted in relation to the government information they need to make consistent and rational decisions. This accelerated the degradation of agricultural land, the criminalization of land relations, the unprecedented growth of large estates, and other negative trends. The study concludes that, as large estates are unproductive land, their growth impacts the evolution of agribusiness, which hinders the socioeconomic development of the agro-industrial complex.

Agribusiness is also very important in Mexico due to the incessant process of urbanization, growth in international trade, and demographic changes, as reported in the study by Solís-Lozano et al. (2022). In that country, agribusiness already has a certain flexibility and solidity to withstand some changes, whether related to market factors or natural phenomena that commonly destabilize supply and demand, generating fluctuations in product prices. This flexible behavior makes agribusiness one of the essential pillars of Mexican socio-economic development, especially for its contribution to food security throughout the country and the supply of numerous national agro-industries. States such as Jalisco, Guanajuato, Michoacán, Sinaloa, and Veracruz, in addition to adequate agroclimatic conditions, availability of water for

irrigation, soil quality, and qualified labor, also have marketing strategies that add value to production and the entire distribution chain.

The study by Darwin et al. (2023) describes the impact of agribusiness on Indonesia's socio-economic development, focusing on the financial aspect. The problematic situation focused on is the low capacity of low-income communities to access money or loans from formal financial institutions. The government created a program aimed at rural agribusiness development (PUAP), with subsidy activity for each of the 52,186 farmer group association units (called Gapoktan), with financial capital assistance. Only 15% of farmer groups have been transformed into agribusiness microfinance institutions (LKMA). The study shows that the difficulty of transformation appears to be related to the Gapoktan groups' lack of ability to handle money, which affects their productive sustainability. The great lesson from this reality is that the transformation of farmers' associations into financial institutions depends on the ability of each group to improve its legality of financial governance and diversify the business field of its clients (producers). In short, it is more advisable for producers to learn how to manage their finances than to rely on an institution that provides them with advice.

The study by Diep et al. (2023) describes the impact of agribusiness on Vietnam's economic development. More specifically, it turns its attention to urban agriculture, which has increasingly contributed to the country's socioeconomic development and, in more detail, to the province of Thai Nguyen. The practice of this agribusiness has the advantages of geographic location, consumer market, human resources, and scientific potential. The results are an increasingly favorable business environment, producing high-quality goods, and meeting consumer needs. The study identified seven statistically significant factors that influence the development of urban agribusiness in that Vietnamese province: urban space, science and technology, natural conditions, the cognitive factors of the local population, citizenship policies, and investment by the local government. In summary, the relational aspect of agribusiness with socioeconomic development is explained by the constant evolution of product quality with the population's involvement in marketing channels. The maturation of production with commercialization seems to be strengthened with the generation of knowledge and government incentives.

Cameroon's experience can be understood from the perspective of the role of social capital in the socio-economic development caused by agribusiness, according to the study by Felix et al. (2023). The reason is the consideration that this capital is as or more important as natural, physical, and human capital in determining the growth of agribusiness. Social

capital includes the role of economic actors who interact and organize themselves to generate, for example, women agricultural entrepreneurs. Thus, the development of agribusiness depends on the quality of social capital, which, in turn, also determines socioeconomic development. Cameroonian agribusiness entrepreneurs promote job creation, food security, and poverty relief in rural areas. However, they have faced several risk factors, such as animal diseases, unstable prices, inadequate capital, and unskilled human capital, which limit their production capabilities. The study concludes that the existence of agribusiness support services could improve its performance, and particularly the resilience of women agricultural entrepreneurs in Cameroon.

The case of China is emblematic because it allows us to understand the relationship between land concentration and the development of agribusiness and, consequently, socioeconomic development, as shown in the study by Wei et al. (2023). The study begins by showing the Chinese reality, which comprises many small agricultural companies dispersed and strongly influenced by the economic market environment. Chinese agribusiness is already corporate, grouped in the East, and fragmented in the West. The market economy was the driving force behind the agribusiness entrepreneurial movement, but paradoxically, it is limited by the level of development of the urban economy. The reason for this is that the development of agribusiness is more subject to the role of market sharing and the level of socioeconomic development of the regions where it operates, especially in the middle and lower Yangtze and Huang-Huai-Hai plains and in southern China, in that the natural and economic basis of agriculture is considered better. It is never too much to remember that Chinese agribusiness needs to provide food security to more than a billion people and contribute to generating revenue for the country.

Four studies portray the Brazilian reality. The first is by Mendes et al. (2023), which analyzes the factors determining the impacts on the use of applications and digital groups for sharing agricultural information for decision-making, which should be considered strategic by public policies. This leaves small agribusiness producers and other sectors of rural production, not yet established as companies, unprepared, especially regarding the use of natural resources and climate phenomena, for example. Sharing this information would have a decisive influence on the socioeconomic development of agribusiness, in addition to raising the level of democratization of information. The study by Silva et al. (2022) focuses on limnological aspects and the influence of the anthropic area on water quality using quality tools, such as the Pareto diagram and PDCA cycle. The results showed that anthropogenic agriculture and non-

agricultural land uses cause limnological changes, with loss of water quality due to changes in natural areas. The lack of adequate sanitation in tributary rivers leads to the recommendation to develop a management system capable of mitigating or eliminating the loss of water quality in the studied region.

The study by Nunes et al. (2023) aimed to analyze the evolution of soybean agribusiness in municipalities in the Matopiba River area based on socioeconomic indicators. The sample consisted of 150 municipalities between the periods of 2004 and 2018. The results showed that the indicators studied (health, employment and income, education and general) explain around 30% of the economic development of the municipalities in that region, confirming the hypothesis that agribusiness's evolution translates into improvements in these socioeconomic indices. Campos et al. (2023) investigated dairy farming in a municipality in Minas Gerais. This agribusiness assumed great importance in the region's socioeconomic development, with new job opportunities, reduced the rural exodus, diversified the economy, and helped develop agribusiness for other small and medium-sized producers. The research concluded with the recommendation that the verticalization strategy of the dairy chain agent has a positive impact if livestock farmers are integrated into the process and other links in the nutritional chain, such as feed, corn, soy, and sorghum manufacturers. If they do not, everyone will be vulnerable to transaction cost constraints, especially in concentrated manufacturing.

The literature review seems to point to some fundamental aspects of agribusiness. One of them is that rural production cannot be limited to the subsistence of the family unit, requiring its professionalization, which implies introducing management systems to improve production quality and its consequent commercialization. The second is that the transformation of production units into companies forces their managers to develop a vision that goes beyond the borders of their properties and the sales environment of their products. Environmental aspects (such as the sustainable use of rivers and forests) financial and marketing aspects, among others, are covered, giving new dynamics to the enterprise. With agribusiness, the former rural product becomes part of the business actors responsible for food security, poverty reduction, improving the quality of life in urban centers, and generating foreign exchange for the country.

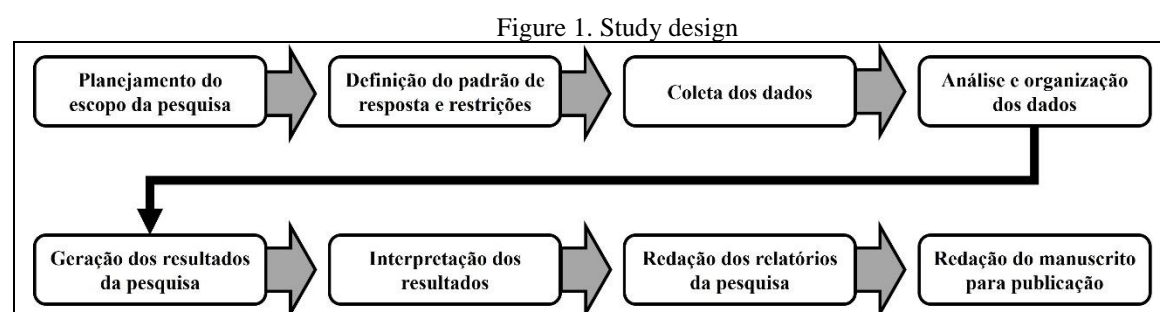
RESEARCH METHODOLOGY

This study aimed to analyze the conceptual definitions of agribusiness found in the scientific literature from 2015 to 2023 using the conceptual bibliographic method. To this end, the following guiding questions were formulated: a) what are the main approaches in the

literature on agribusiness? B) What are the main attributes of agribusiness, and c) What are the dynamics of agribusiness that the attributes allow to delineate? The methodological design of the research followed the guidelines contained in the studies by Nascimento-e-Silva (2020a; 2020b; 2021a; 2021b; 2021c; 2023) regarding the conceptual bibliographic method.

Study Design

This research design consisted of seven stages by a similar study developed by Craveiro et al. (2023) and Simões and Nascimento-e-Silva (2020). The first stage consisted of developing the scope of the research, with the exact definition of the guiding questions, the time horizon of the responses to be collected, and the database from which the data would be obtained. The second stage consisted of defining the guiding questions of the study, the response pattern that would be used to collect the data, and the types of responses that would not be accepted. The third stage consisted of data collection, which was the execution of response patterns with their respective response patterns and restrictions. In the fourth stage, the analysis was carried out, excluding all data that did not fit the established standard, and complied with the restrictions and the organization of the data by generating tables and figures that summarized the answers sought. Figure 1 summarizes the study design.



Source: Prepared by the authors.

In the fifth stage, the results were generated, following in detail the determinations of the conceptual bibliographic method (2020a; 2021a). In the sixth stage, the results were interpreted and compared with the literature review and similar studies in the database. The seventh stage consisted of preparing four reports, one for each guiding question and the last with the study's overall results. In the eighth and final stage, the study was written for submission for publication and communication to the scientific community about the results achieved (Nascimento-e-Silva, 2020b)

Population and Sample

The population of this study consisted of all conceptual definitions contained in scientific studies published between the years 2015 and 2023 in the Google Scholar database. The sample consisted of 16 studies that met the established criteria. There were no data from undergraduate and specialization course completion studies nor technical documents because the purpose was to base the results on scientific studies accepted by the scientific community. The data collected began with the response pattern “Agribusiness can be defined as” so that the equivalence terms and the attributes, raw materials with which the investigation results were generated, were identified.

Instrument and Techniques for Collecting, Analyzing, and Organizing Data

The data were collected with the help of a two-column table called data mass (Nascimento-e-Silva, 2023), as also used in the studies by Craveiro et al. (2023) and Simões and Nascimento-e-Silva (2020), among others. The answers and data sources were placed in the mass of data. At the time of collection, considering the restrictions, whether the responses followed the response pattern was analyzed. The analysis was done by separating the equivalence terms from the attributes (Nascimento-e-Silva, 2023). The equivalence terms are the words that appear after the answer pattern, as in “Agribusiness is a set of...” where the set is the equivalence term, while attributes are the words that come after the equivalence term, to give it meaning and make that term equivalent to agribusiness, as in “Agribusiness is a set of activities originating from rural production aimed at ensuring food security and generation of income for its rural producers,” in which “activities,” “rural production,” “food security,” “revenue generation” and “rural producers” are its attributes.

Equivalence terms and attributes constitute the right side of an equation ordinary to all definitions (Nascimento-e-Silva, 2021b; 2023). The organization stage consisted of collecting equivalence terms and their quantification to organize them in table form, as shown in Table 1. The same procedure was used to organize the attributes, with the difference that they were much more numerous. As it was impossible to work with the 45 attributes found, forming semantic groups was used to generate Table 2. The names of the groups were invented to give the most exact possible meaning of what the attributes represent.

Generation and Interpretation of Results

The results in Table 1 helped demonstrate the answer to the guiding question regarding equivalence terms, which are the main approaches to agribusiness, and configure the limits of scientific knowledge about the phenomenon. The results in Table 2 show the answers to the guiding question that sought to know the main characteristics of agribusiness. The central column shows the attributes, and the semantic groups present the semantic synthesis around which those characteristics gravitate. The third guiding question was answered based on the semantic-logical analysis of the groups formed, seeking to understand how each relates to the others. This procedure began with identifying the primary semantic group, the first appearing and the last consolidating agribusiness. Afterward, the intermediate semantic groups were adjusted to compose an evolutionary dynamic logical scheme of the phenomenon.

As stipulated by the conceptual bibliographic method, the interpretation of the results consisted of comparing the semantic groups and their contents with current scientific studies. The interpretative purpose of this procedure is to assess whether the empirical results align with or violate the logic of the most recent scientific discoveries about agribusiness and, especially, with the theoretical framework exposed from the literature review, as exposed in the discussion of the results. The validations of the study's findings and their influential contributions to the stock of scientific knowledge about the agribusiness phenomenon emerged from this comparison.

RESULTS AND DISCUSSION

This section presents the investigation results that sought to analyze the conceptual definitions of agribusiness published and available in the Google Scholar scientific database from 2015 to 2023 using the conceptual bibliographic method. To facilitate understanding, it is organized based on guiding questions, with the discussion of the results corresponding to the third of them, which sought to know what its evolutionary dynamics are based on the results achieved and in line with the literature review.

Agribusiness: Equivalence Terms

The literature review showed that set is the most common equivalence term used to define agribusiness (Kruger et al., 2020; Lourenço et al., 2021; Marcatti et al., 2020; Brito et al., 2016; Martinez-Burgos et al., 2021). The idea of a set is equivalent to the conception of any gathering of things, objects, and phenomena with some common characteristic. For example,

January, February, and December have the fact that they are months of the year in common and, therefore, are part of the set of months of the year. This is precisely the meaning of agribusiness because it involves the production of products and services aimed at agriculture and livestock and a series of other related economic activities. Examples of components of this set include production transportation services, supply of inputs, and legal and tax consultancy, among countless others.

The word sum was another equivalence term used to define agribusiness (Mendes et al., 2020; Prasetyo et al., 2015; Antonovz, 2020). The sum is the designation given to joining equal or different things. For example, you can add oranges from two different people in the same way that you can add the financial resources of different organizations financing agricultural activities, forming the total capital available for investment in this sector. The term sum is equivalent to agribusiness because it represents the aggregation of several agricultural activities, from the use of inputs to the delivery of the product to its final consumer and, often, its disposal in landfills and reuse, in the cases of reverse logistics. Thus, the sum of some activities in each segment generates results influencing every link in a production chain.

The activity was also an equivalence term cited by some authors to define the word agribusiness (Taghiyev, 2021; Siddique, 2018). With this term, agribusiness is defined as all types of business activities, ranging from agricultural production to the final consumer, from the perspective of distribution logistics, and from the first supplier, who is the one who removes inputs from nature to the one who delivers the materials that will be used in the production of the agribusiness unit. As the activity involves the entire supply chain, including all services, for example, that are demanded by the system, it can also be considered a synonym for economic activity. Thus, the term activity reflects everything that happens synergistically in the production process up to consumers. The definition of agribusiness characterizes the meaning of the production chain.

Another agribusiness equivalence term in the literature was science (Hajgolkar & Sabanna, 2017; Hadi & Zainol, 2019). Science can be considered a field of study (Keathley, 2023), systematic knowledge (Tiwari et al., 2023), and continuous search (Tarchi et al., 2023) to understand reality. In this, agribusiness is seen as a reality on which science has focused to understand it and which, based on this understanding, can create techniques, technologies, instruments, and all sorts of products and services aimed at its improvement. Science seeks to understand everything from the productive part, relating to the supply of inputs and services, to the behavior of the entire customer chain.

Table 1. Agribusiness: equivalence terms

References	Equivalence terms
Kruger et al. (2020); Lourenço et al. (2021); Marcatti et al. (2020); Brito et al. (2016); Martinez-Burgos et al. (2021)	Set
Mendes et al. (2020); Prasetyo et al. (2015); Antonovz (2020)	Sum
Taghiyev (2021); Siddique (2018)	Activity
Hajgolkar & Sabanna (2017); Hadi & Zainol (2019)	Science
Hajgolkar & Sabanna (2017); Hadi & Zainol (2019)	Practice
Azevedo et al. (2021)	Settings
Toia (2019)	Industry
Nery et al. (2022).	Process
Galván (2017)	Transformation

Source: Data collected by the authors.

The studies by Hajgolkar and Sabanna (2017) and Hadi and Zainol (2019) consider agribusiness a practice. This is an exciting concept because the word “practice” has a meaning contrary to the meaning of the word science. Science intends to understand and explain the functioning of a part of reality systematically and continuously so that there is progress in human understanding. Practice, in turn, is the consequence of science in the sense of using what science explains and knows to guide and conduct human actions and practices more safely. This means that, increasingly, agribusiness can be practiced because its actions are supported by valid and reliable knowledge that comes from science. Practice, therefore, in this sense, needs to be understood about science. In other words, there are people, institutions, and organizations focused on the science of agribusiness, and people, institutions, and organizations focused on its practice to make it work.

The term configuration was mentioned in the study by Azevedo et al. (2021) to characterize a specific period of the beginning of modernization and the advance of capitalism in the countryside. This study shows that the remarkable transformation that today's large industry focused on agricultural business has undergone began in the 1960s and 1970s. This characterization is essential to show that great revolutions do not happen overnight; on the contrary, they result from many investments, effort, and determination. The traditional view, which still prevails in areas where modernity has not yet arrived, of agricultural units being worked by caboclos, individuals often called “caipira,” was gradually transformed into actual industries, with agricultural, livestock, and extractive production as the focal center. As it transforms, it attracts all production and support systems, such as financial networks and research and development institutions, among countless others. Thus, with this concept, it is evident that a previously precarious production chain was modernized and continues to evolve in technological evolution. Agribusiness even responds to the commercial interests of the nations linked to it, whether as suppliers or consumers.

The study by Toia (2019) considers agribusiness an actual industry. This term's idea is not equivalent to a factory or industrial plant. Its meaning is Anglo-Saxon, equivalent to the primary category of business activity (Ezeora & Argungu, 2022), shared by a group of companies (Kimura, 2022; Mefi & Asoba, 2020), which offer very similar products and services (Vargas- Hernández & Solís, 2019; Feng et al., 2020) and with a series of other companies that provide them with ancillary services in an integrated manner. In this sense, agribusiness is a configuration of a series of products and services that originate from agricultural, livestock, and extractive production in an integrated manner and expand attractively from other business activities that support it. It can also be said that these activities are synchronized throughout the production chain. The example of an extensive series of production lines for a specific agricultural product, such as soybeans, which goes through several stages or processes to reach the finished product, serves to characterize the term industry for agribusiness. It encompasses both seed and credit suppliers, goes through all the production processes of all soybean-producing companies, and all business systems aimed at delivering products to consumers, such as industries, wholesalers, retailers, and neighborhood markets, among countless others.

The study by Nery et al. (2022) sees agribusiness as a process. The term process can be understood both from an internal point of view as the production process that transforms inputs into products (Pahl et al., 2023; Meidutė-Kavaliauskienė et al., 2023; Oktavia et al., 2020) and external, in the sense of how a society or part of it produces its subsistence, equivalent to a production system, which involves the production processes of several companies that operate in the same geographic space and converge their efforts to develop a particular sector of economic activity, as can be seen from the studies by Ramirez (2023) and Schumacher et al. (2020). Brazilian agribusiness as an external production process began to configure a set of activities linked to the entire productive chain of agriculture, livestock, and extractives from the mid-1960s onwards and has been intensifying in such a way that, currently, it is considered one of the most important in the world.

Agribusiness Attributes

The literature review allowed the creation of eight attributes that characterize agribusiness. The first was activities, which reflects a growing geographic and business sense, which begins with agricultural activities (Antonovz, 2020) that characterize agribusiness and expand to economic activities (Lourenço, 2021; Martinez-Burgos, 2021) specific to the sector, continuing with the conformation of the entire industry (Toia, 2019), in the sense of aggregation

of internal activities and support to agribusiness, and culminates with global activities (Prasetyo (2015), which characterize mature agribusinesses. In a way, in addition to a center-periphery view, the literature review presents an evolutionary cycle of the agribusiness production chain.

The other group of attributes formed was commercialization, in the sense of carrying out production aimed at meeting the needs of predetermined customers (Hajgolkar, 2017; Hadi, 2019; Martinez-Burgos, 2021; Taghiyev, 2021). Commercialization, here, is understood as a significant economic sector (Hajgolkar, 2017; Hadi, 2019) alongside industry and services. In close relation with the grouping of activities, commercialization represents a nomenclature that involves both the idea of business (Brito, 2016), which is through which an organization or an entire sector generates revenue and earns foreign exchange for a country, as well as the typical activities of international trade, through import and export mechanisms (Siddique (2018). Thus, marketing as a grouping of attributes represents the supply of national and international customer needs.

The grouping known as distribution logistics is a natural consequence of both business activities and the commercialization of the product of these activities. As we know, there are three generic types of logistics: supply, internal logistics, and distribution. The literature review showed that there is a predominance of distribution logistics in agribusiness, marked explicitly as distribution and redistribution (Lourenço, 2021; Prasetyo, 2015; Mendes et al., 2020; Siddique. 2018), food distribution (Hadi, 2019) and product distribution (Kruger, 2020). This logistics goes from the producing organization to the final consumer (Kruger, 2020). This chain includes wholesale and retail organizations (Siddique, 2018), as well as storage organizations of all sizes and specializations (Prasetyo (2015); Mendes et al., (2020).

Another grouping was formed as companies to highlight the harmony and convergence of findings around the dynamics of the agribusiness sector, as already seen in the activity and commercialization groupings. Agribusiness comprises companies that produce and process products (Kruger, 2020), which are the core of the production system, alongside the most varied companies possible (Kruger, 2020), such as suppliers of agricultural machinery and equipment. Surrounding these two groups, as if they were a third layer, are typically capitalist companies (Marcatti, 2020) whose specialty is not agribusiness but that also provide support, such as financial services. Companies, therefore, mean business activities aimed at achieving objectives (earning profits) from the exploration of a particular market niche, as can be seen from the studies by Morka and Aliku (2022), Singleton (2019), and Schaefer & Singleton (2020). Agribusiness seems to have a dynamic associated with the degree of success of the ventures, which start locally and reach the global market. Table 2 summarizes these findings.

Table 2. Agribusiness attributes

References	Attributes	Semantic groups	
Antonovz (2020)	Agricultural activities	Transnational activities	
Lourenço (2021); Martinez-Burgos (2021)	Economic activities		
Toia (2019)	Industry		
Prasetyo (2015)	Global activities	Commercialization	
Hajgolkar (2017); Hadi (2019); Martinez-Burgos (2021); Taghiyev (2021)	Commercialization		
Hajgolkar (2017); Hadi (2019)	Business		
Siddique (2018)	Importation exportation		
Brito (2016)	Business		
Kruger (2020)	Final costumer		Distribution logistics
Lourenço (2021); Prasetyo (2015); Mendes, Gerólamo, Zuin, (2020); Siddique (2018)	Distribution/Redistribution		
Hadi (2019)	Food distribution		
Kruger (2020)	Product Distribution		
Prasetyo (2015); Mendes, Gerólamo, Zuin, (2020)	Storage		
Siddique (2018)	Retailer		
Siddique (2018)	Wholesaler		
Kruger (2020)	Companies	Companies	
Marcatti (2020)	Capitalist companies		
Kruger (2020)	Processing companies		
Hajgolkar (2017); Hadi (2019); Antonovz (2020)	Inputs	Supply logistics	
Prasetyo (2015)	Agricultural materials		
Mendes, Gerólamo, Zuin, (2020); Kruger (2020)	Agricultural inputs		
Lourenço (2021)	Supply (inputs)		
Hajgolkar (2017); Prasetyo (2015); Martinez-Burgos (2021); Prasetyo (2015)	Processing	Production	
Mendes, Gerólamo, Zuin, (2020); Toia (2019); Siddique (2018)	Production operations		
Lourenço (2021); Hajgolkar (2017); Toia (2019); Taghiyev (2021); Martinez-Burgos (2021)	Production		
Galván (2017)	Forestry		
Galván (2017)	Fishing		
Lourenço (2021)	Natural fibers		
Martinez-Burgos (2021)	Forests		
Lourenço (2021)	Bioenergy		
Siddique (2018); Martinez-Burgos (2021); Taghiyev (2021); Nery (2022); Toia (2019); Caballero Galván (2017)	Agricultural product		
Prasetyo (2015)	Commodities (agricultural)		
Antonovz (2020)	Agribusiness		
Martinez-Burgos (2021); Lourenço (2021)	Foods		
Kruger (2020)	Rural properties		
Martinez-Burgos (2021)	Non-food		
Lourenço (2021)	Waste and by-products		
Hajgolkar (2017); Hadi (2019)	services		Services
Antonovz (2020)	Sector (services)		
Marcatti (2020)	Exploration	Agroecosystem	
Azevedo (2021)	Modernization		
Taghiyev (2021); Brito (2016)	Economy		
Taghiyev (2021)	Complexity of the agroindustry		

Source: Data collected by the authors.

Supply logistics was another group of attributes generated to characterize the activities of supplying the needs of producing organizations, mainly with different types of inputs

(Hajgolkar, 2017; Hadi, 2019; Antonovz, 2020), typically agricultural inputs (Mendes et al., 2020; Kruger, 2020) and the different varieties of materials that this sector demands (Prasetyo, 2015). Distribution logistics is the communication channel that organizations create and maintain with their suppliers. It is the other logistical side, having as reference the supply logistics, which goes from the company to its customers. This result shows that agribusiness has expanded to involve integrated logistics activities, constituting the so-called supply chain as the sum of supply and distribution logistics.

The production grouping was created to encompass all productive activities originating and constituents of agribusiness. Traditional agricultural production is the most visible part of agribusiness, as shown by studies by Siddique (2018), Martinez-Burgos (2021), Taghiyev (2021), Nery (2022), Toia (2019) and Galván (2017). However, agribusiness production also involves a variety of businesses, such as the use of waste and by-products (Lourenço, 2021), non-food products (Martinez-Burgos, 2021), those made on rural properties (Kruger, 2020), food (Martinez-Burgos, 2021; Lourenço, 2021), agro-industries (Antonovz, 2020), agricultural commodities (Prasetyo, 2015), bioenergy (Lourenço, 2021), forest handling (Martinez-Burgos, 2021), extraction of natural fibers (Lourenço, 2021) and all forms of extractive, fish farming in all its forms (Galván, 2017), forestry of the most varied species (Galván, 2017), all forms of agricultural production (Lourenço, 2021; Hajgolkar, 2017; Toia, 2019; Taghiyev, 2021; Martinez-Burgos, 2021), all forms of operations, especially services, surrounding agribusiness, and all forms of processing of products originating from all these production modalities listed here (Hajgolkar, 2017; Prasetyo, 2015; Martinez-Burgos, 2021; Prasetyo, 2015). These results indicate the increasingly growing variety of specializations of production that come from the field, which constitute the original number of the entire sector, so this production characterizes agribusiness and makes all other productions and operations of its surroundings called that way.

The semantic group services designate the entire range of activities not directly linked to agribusiness production, as can be seen in the studies by Hajgolkar (2017) and Hadi (2019). Examples of services include banking and specialized consultancies, which are extremely important for agribusiness companies to consolidate and expand. These services are so varied and comprehensive that they constitute a new sector, as Antonovz's study (2020) confirmed. This means that, as a sector, there are numerous specialized forms of operation and organization, including logistical activities, distribution, and supply.

The agroecosystem semantic grouping was created to show that the complexity of agroindustry (Taghiyev, 2021) and agroservices is such that they present a set of communities

of various types of distinct organizations operating together. This complexity creates a new economy (Taghiyev, 2021; Brito, 2016) with its dynamics but connected with other economic sectors, evolving the rational and sustainable exploitation of natural resources (Marcatti, 2020), modernizing itself and the sectors with which it connects (Azeveo, 2021). The agroecosystem is the always temporary result of an evolutionary process of organizations like that of natural species, where what survives is not the most prepared, robust, or intelligent organization but the one that best adapts to constant environmental changes.

Discussion of Results

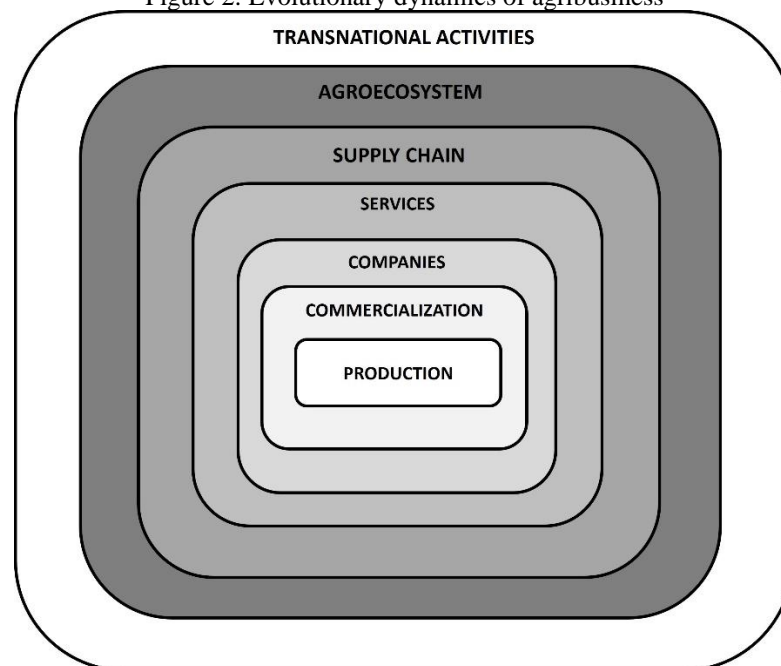
The results of this study indicate that the idea of a set or sum of activities originating from the field still predominates in science, as evidenced by the equivalence terms in Table 1. The study by Silva et al. (2022), for example, considers all transactions and operations in agriculture and livestock as agribusiness; that of Nunes et al. (2023) encompasses all operations, not limited to the rural internal environment, while that of Fernandes and Welch (2019) encompasses the sum of all systems linked to the countryside, such as industries, financial services, technology, and marketing. This denotes an expanded conception of what has predominated in the general public's mentality and has been commonly conveyed by the media, imagining that agribusiness is a unique and exclusive synonym for large companies producing commodities. Moreover, the strangest thing is that these distorted images link all kinds of environmental degradation to an old plantation-type production conception, which is increasingly rare where agribusiness flourishes.

The image that science presents is that agribusiness has been the significant center producing and radiating technological innovations, as shown by studies by Halil et al. (2023), Shang et al. (2023), Balaji and Mamilla (2023), Fiorillo et al. (2023) and Garcez and Dias (2023), among countless others. In all spaces and countries where agribusiness has consolidated and expanded, a series of innovations and transformations can be seen, which materialize mainly in the increase in the well-being and quality of life of the surrounding communities, firstly, and those linked to organizations that give them support. In several countries, agribusiness has become the primary driving force of the economy, supplanting other economic sectors, such as service and industrial sectors. Its first significant impacts are income generation and food security (Inyang et al., 2023; Nnamani & Obediah, 2023; Barbosa et al., 2023; Adenyanju et al., 2023) for producers, who then transform their production into business units.

The results obtained about the attributes of agribusiness that appear in scientific studies allowed the elaboration of a representative scheme of the evolutionary dynamics of agribusiness, whose root is precisely the production of the field. Production, therefore, is its evolutionary starting point. Some start as family producers, but most of those considered successful begin their production professionally as a business. The difference between professionalized production and so-called family agriculture is that the latter is almost always oriented only towards gains that guarantee the subsistence of the family unit. Professionalized production applies instruments and tools typical of professional organizations, with strategic planning, rationalized use of their resources, and a system of continuous improvement of the quality of their products by the demands of their customers.

A typical example may clarify the difference from this starting point. A specific Amazonian community produces Brazil nuts and sells their production for 55 reais per can, which contains 18 to 19 kilos of the product in shell. The community follows the guidance of experts linked to a public organization. A professionalized unit in the same region carries out the same type of production. However, instead of selling the product in shell, it industrializes it and delivers it to the European market at 60 euros per kilo. The difference is that the community receives 55 reais for a can of nuts, while the professionalized unit earns 3,823 reais for the same quantity but benefits. Result: The Amazon community remains miserable like its ancestors, while the professionalized unit gets rich yearly and distributes the wealth among its employees.

Figure 2. Evolutionary dynamics of agribusiness



Source: prepared by the authors.

As shown in Figure 2, commercialization is the decisive step in the evolution of agribusiness. This is, for example, where almost all so-called family farming fails. This failure results from a lack of knowledge of management and production processes. Generally, those who produce systematically and rationally are also capable of developing rational marketing schemes, given precisely by the increasing quality of their production. It is necessary to develop, right here, a communication channel between the production unit and its customers, which will later become robust logistical schemes. The cycle of increasing the quality and quantity of production with more effective and efficient marketing schemes leads production units to transform into companies. They no longer like or want to be called family farming but simply agribusiness companies. This is where professionalization begins to consolidate and prepare the company for more extraordinary leaps forward. This is where companies specializing in production and support for agribusiness activities, such as transport, storage, and finance, also emerge.

The services sector appears more decisively after agribusiness is already effective. Effectiveness is understood as the awareness on the part of managers, owners, shareholders, and employees that the organization has an identity and culture of professional production; that is, it is a business and that, as such, it needs to have its behavior linked to the organizations of its sector of activity and those who support them. The producer figure no longer decides whether to plant this harvest, dedicate himself to production, or spend a few months in the city. There is a long-term plan with specific production delivery dates and a carefully programmed calendar. Given the business's complexity, the owner is often unable to handle all his company's responsibilities alone. The services sector arises precisely for this purpose: to carry out activities not directly linked to production. This is why legal, accounting, financial, logistical, health, and educational services, among countless others, are contracted.

Figure 2 highlights the supply chain as a separate category due to its importance for agribusiness success. Several studies consider logistics vital for agribusiness (Ada et al., 2023; Li et al., 2022; Reis & Machado, 2022). The supply chain is made up of suppliers (Abbate et al., 2023; Nellyyat, 2023), whose mission is to provide the agribusiness company with the inputs it needs so that it can carry out its production, while the distribution chain is structured in wholesalers, retailers and customers who receive the production to resell or consume (Irjayanti & Azis, 2023; Soesilo, 2023; Mohammed et al., 2023). Internal logistics are carried out within the organization between these two large chains, beginning when the supply chain receives inputs or raw materials and ending with shipping, when the finished products are delivered to the distribution chain.

The scope of agribusiness activities determines and defines the extension and reach of the supply chain. These activities are the relationship between the production unit, marketing, and auxiliary services. They function centrifugally. They direct production to increasingly distant geographic regions and centripetal because they attract new companies and enterprises to your surroundings from the most different and distant places. Similarly, it is like a wave that reaches increasingly distant and distinct regions, depending on the quality and values it delivers. It causes reverse force, attracting partnerships, collaborations, and customers from the locations it reaches. This way, agribusiness can advance so much that it can reach the globe.

CONCLUSION

This study presented an overview of the existing scientific literature on agribusiness. Specifically, it showed the main approaches that can be found, demarcating the frontiers of knowledge about this phenomenon, as well as its main characteristics, which represent those aspects of reality that are most studied, most visible, and that define it. These discoveries made it possible to describe a probable dynamic of its evolution, which begins with the professionalization of the production unit in increasing interaction with marketing until it is forced to transform into a formal enterprise. As a company, the dynamics continue with the strength of commercialization, reaching increasingly more significant geographic regions until reaching the entire planet. What sustains the evolutionary dynamics is the attraction of enterprises to the surroundings of the production unit through the effectiveness of the services sector, especially logistics.

These findings fundamentally affect how agribusiness is viewed, especially in socioeconomically undeveloped regions such as Africa, Latin America, and Asia. In Brazil, in particular, the prevalent mentality tends to distinguish agribusiness as a unique and exclusive form of large rural enterprises, almost all of which are already globalized, discarding small enterprises from this mental coverage, almost always classified as family farming. Suppose the family farmer establishes himself as an enterprise. In that case, he often receives the entire discriminatory range intended for the large agribusiness enterprise, discouraging his professionalization, an essential corollary of the germ of agribusiness. Professionalization involves replacing improvised methods of producing and managing the enterprise with rational aspects originating from science and introducing scientifically subsidized techniques and technologies.

From a theoretical point of view, the discoveries imply relational developments with other traditional economic spheres, such as industry, commerce, and services, but also and essentially with the scientific and technological production that agribusiness has promoted and subsidized. This means that there appears to be a directly proportional relationship between the development of agribusiness and the strengthening of the surrounding industrial, commerce, and services sectors, as well as the generation of scientific knowledge and technological production aimed at promoting continuous improvements in the production process and improvements of relational schemes with other agribusiness companies and other components of the agroecosystem. These two relational aspects require in-depth studies to confirm or refute this hypothesis.

REFERENCES

- Abbate, S., Centobelli, P., Cerchione, R., Giardino, G., & Passaro, R. (2023). Coming out the egg: Assessing the benefits of circular economy strategies in the agri-food industry. *Journal of Cleaner Production*, 385, 1-14. <https://doi.org/10.1016/j.jclepro.2022.135665>.
- Ada, J. A., Ngbodin, S. C., & Asuquo, E. E. (2023). Enhancing Medium-Scale Manufacturing Firm Performance in Nigeria: A Comprehensive Study on Value Chain Management and Operational Efficiency. *Journal of Public Administration, Policy and Governance Research*, 1(2), 82-92.
- Adeyanju, D., Mburu, J., Gituro, W., Chumo, C., Mignouna, D., & Mulinganya, N. (2023). Impact of agribusiness empowerment interventions on youth livelihoods: Insight from Africa. *Heliyon*, 9(11), 1-11. <https://doi.org/10.1016/j.heliyon.2023.e21291>,
- Antipin, D. A., & Tyapkina, M. F. (2023, June). Financial aspects of digitalization of agriculture in the Russian Federation. In *AIP Conference Proceedings*, 2777(1), 1–12. <https://doi.org/10.1063/5.0140675>.
- Antonovz, T., Correa, M. D., & Costa, M. C. (2020). Social innovation and local development: an analysis in an agroenergy condominium for the family agriculture. *Business and Management Studies*, 6(4), 36-49.
- Arkeman, Y., Kailaku, S. I., Saefurahman, G., & Fatullah, R. (2022). Applications of the Internet of Things (IoT) and Blockchain for Agriculture in Indonesia. *The FFTC Journal of Agricultural Policy*, 3, 57-68.
- Azevedo, A. Souza et al. (2021). *(Des) politização, agrotóxicos e saúde: disputas hegemônicas entre o governo Bolsonaro e as Bruxas Sem Terra*. 2021. Unpublished master thesis, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.
- Balaji, V., & Mamilla, R. (2023). Intellectual capital efficiency and its impact on sustainable growth of Indian agribusiness sector. *International Journal of Learning and Intellectual Capital*, 20(2), 193-216. <https://doi.org/10.1504/IJLIC.2023.129242>.

Barbosa, H. B. A., Lins, N. A. D. A., & de Almeida Pinto, P. A. L. (2023). Development of an income generation program in agriculture based on innovative initiatives from China and Portugal aimed at eradicating poverty of people with disabilities through a digital platform. *Boletim do Tempo Presente*, 12(01), 37-53.

Bergougui, B., & Murshed, S. M. (2023). Spillover effects of FDI inflows on output growth: An analysis of aggregate and disaggregated FDI inflows of 13 MENA economies. *Australian Economic Papers*, pp. 1–25. <https://doi.org/10.1111/1467-8454.12320>.

Brito, F. F., Filho, F. D. S. P., Sakuno, I. Y., Watanabe, C. Y., Tourinho, M. B., & Benevides, S. L. (2016). Innovation in agribusiness as a strategy for regional development. *IJASOS-International E-journal of Advances in Social Sciences*, 2(6), 620-630.

Campos, G., Bonato, H. L., & Pereira, R. F. C. (2023). Produzir ou adquirir no mercado: estudo sobre as possibilidades de integração vertical. *Refas-Revista Fatec Zona Sul*, 9(5), 1-22. https://doi.org/10.26853/Refas_ISSN-2359-182X_v09n05_05.

Craveiro, E. G. et al. (2023). A proposal for a conceptual definition of cooperativism based on a bibliometric study. *IOSR Journal of Business and Management (IOSR-JBM)*, 25(7), 28-38. DOI: 10.9790/487X-2507012838.

Darwis, V., Rachmawati, R. R., Muslim, C., Chanifah, Sembiring, A., Ilham, N., ... & Dewi, D. O. (2023). Transformation of financial institutions grants from the government to inclusive financial institutions in Indonesia. *Plos one*, 18(6), 1-20. <https://doi.org/10.1371/journal.pone.0286482>.

Diep, V. B., Linh, D. H., & Khiem, P. H. (2023). Analysis of factors influencing urban agriculture development: A case study on Thai Nguyen Province, Vietnam. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery*, 54(9), 42-50.

Douis, R., & Ahmia, F. (2023). Corporate social responsibility disclosure in Algeria. *Journal of Economic Sciences, Management & Commercial Sciences*, 16(1), 327–345.

El-Deeb, M. M., Desoky, A. L. I., Khattab, A. R., Elbadawy, A. A., Saber, A. M., & Eissa, M. M. (2023). effect of dried cassava (*Manihot esculenta*) hay levels in Barki ewe's rations on their nutritional and production aspects. *Egyptian Journal of Nutrition and Feeds*, 26(1), 55–65. <https://doi.org/10.21608/ejnf.2023.297952>.

Ennaji, D. E. (2023). Les représentations du travail dans les manuels en usage à l'école primaire marocaine 1923-1989. *Central European Management Journal*, 31(1), 496-512. <https://doi.org/10.57030/23364890.cemj.31.1.53>.

Ezeora, B. U., & Argungu, S. A. (2022). Repositioning equipment maintenance practices through attitudinal change in Emene industrial area small and medium scale metal fabrication industry, Enugu state of Nigeria. *ESUT Millenium Journal of Education*, 1(1), 141-149.

Felix, N., Forsuh, N. E., & Georges, F. T. (2023). Social capital and market outlet consideration on female agriprenurship in Cameroon. *Journal of Academic Research in Economics*, 15(1), 149-163.

Feng, H., Zhao, G., & Qian, M. (2020). *The development of China's information resource industry: Policy and instrument*. Oxfordshire: Routledge.

Fernandes, B. M., & Welch, C. (2019). Contested landscapes: territorial conflicts and the production of different ruralities in Brazil. *Landscape Research*, 44(7), 892-907. <https://doi.org/10.1080/01426397.2019.1595549>.

Fiorillo, V., Lo Zoppo, M., & Saputo, A. (2023). Innovation trends in the agribusiness supply chain. In *Agriculture as an alternative investment: The status quo and future perspectives*. Cham: Springer Nature Switzerland.

Galván, A. S. C. (2017). *Evaluation of the influence of ultrasound and supercritical fluids in processes of polyphenolic compounds extraction from agroindustrial wastes*. Unpublished master thesis, Universidad Nacional de Colombia, Manizales, 2017.

Garcez, T. L., & Dias, M. F. P. (2023). Technological innovation system in agribusiness: motors and evolution. *Innovation & Management Review*. 1-13. <https://doi.org/10.1108/INMR-11-2021-0212>.

Genhua, X. (2023). Enhancing performance in e-agribusiness through the adoption of e-business: A conceptual framework for Beijing, China. *Journal of Digitainability, Realism & Mastery (DREAM)*, 2(05), 72–77. <https://doi.org/10.56982/dream.v2i05.126>.

Hadi, M. H., & Zainol, F. A. (2019). Agribusiness in Malaysia: some facts and emerging issues. *Journal of Management and Operation Research*, 1(2), 1-8.

Hajgolkar, M. R., & Sabanna, T. (2017). Role of entrepreneurs in promoting agribusiness in India. *International*

Halil, H., Wathoni, N., Hidayati, A., & Khalil, F. I. (2023, October). An efficiency of technological innovation of legowo row system on rice farming in Lingsar district of West Lombok regency West Nusa Tenggara Province, Indonesia. In *IOP Conference Series: Earth and Environmental Science*, 1253(1), 1-13. <https://doi.org/10.1088/1755-1315/1253/1/012084>.

Herlianto, D., Tahalea, S. P., Wibowo, A. W. A., & Rahatmawati, I. (2023, September). Economic Feasibility of Modified Cassava Flour Milling in Gunungkidul Region, Indonesia: A Value-Added Agribusiness Venture. In *IOP Conference Series: Earth and Environmental Science*, 1242(1), 1-6. <https://doi.org/10.1088/1755-1315/1242/1/012027>.

Herrera-Pérez, V., Suárez-Cebador, M., Salguero-Caparrós, F., & Pardo-Ferreira, M. C. (2023). Analysis of the average duration of sick leave due to electrical contact in Spain's primary, secondary and tertiary sectors (2013–2019). *Heliyon*, 9(4), 1-13. <https://doi.org/10.1016/j.heliyon.2023.e14750>.

Inyang, H. B., Filli, F. B., & Ogbonna, S. I. (2023). Determinants of poultry egg production in etim ekpo local government area of Akwa Ibom state, Nigeria. *Journal of Agripreneurship and Sustainable Development*, 6(3), 29-38.

Irjayanti, M., & Azis, A. M (2023). How well is the coffee business supply chain performing in West Java? *HOLISTICA—Journal of Business and Public Administration*, 14(1), 173-185. <https://doi.org/10.2478/hjbpa-2023-0010>.

Journal for Innovative Research in Multidisciplinary Field, 3(4), 65-69.

Kailaku, S. I., & Djatna, T. (2022). Traceability and quality monitoring improvement throughout carrot supply chain with the implementation of Internet-Of-Things. In *IOP Conference Series: Earth and Environmental Science*, 1024(1), 1-10. <https://doi.org/10.1088/1755-1315/1024/1/012079>.

Keathley, K. (2023). The Ethics of Integrating Faith and Science. *Religions*, 14(5), 1–9. <https://doi.org/10.3390/rel14050644>.

Khlystun, V. N. (2019). Development of land relations in the agroindustrial complex. *Herald of the Russian Academy of Sciences*, 89, 325-332. <https://doi.org/10.1134/S1019331619040038>.

Kimura, K. (2022). How do firms specialize? The technological positions of Chinese robotics firms. *Journal of Chinese Economic and Business Studies*, 20(4), 339–353. <https://doi.org/10.1080/14765284.2022.2036577>.

Kruger, S. D. et al. (2020). Inovação como ferramenta competitiva no desenvolvimento econômico das atividades rurais. *Latin American Journal of Business Management*, 11(2), 2020.

Li, J., Yang, H., & Qian, J. (2022). A credible traceability system for cold chain logistics developed for China's agricultural products in the context of COVID-19. *Journal of Agricultural Big Data*, 14-24.

Lourenço, N. M. S. et al. (2021). *A utilização de agrotóxico na atividade empresária do agronegócio: uma visão crítica*. Unpublished master thesis, Universidade Nove de Julho, São Paulo, Brazil.

Marcatti, A. A. et al. (2020). *Formação e educação na agroecologia: entre resistências e subordinações*. Unpublished Ph.D thesis, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.

Martinez-Burgos, W. J., Sydney, E. B., Medeiros, A. B. P., Magalhães, A. I., de Carvalho, J. C., Karp, S. G., ... & Soccol, C. R. 2021. Agro-industrial wastewater in a circular economy: Characteristics, impacts and applications for bioenergy and biochemicals. *Bioresource Technology*, 341, 125795. <https://doi.org/10.1016/j.biortech.2021.125795>.

Marx, A., Otteburn, K., Lica, D., Van Calster, G., & Wouters, J. (2022). Introduction to the research handbook on global governance, business and human rights. In Marx, A. et al. (eds.) *Research Handbook on Global Governance, Business and Human Rights* (pp. 1-21). Northampton, USA: Edward Elgar Publishing.

Mayberry, L. S., Zhao, S., Roddy, M. K., Spieker, A. J., Berg, C. A., Nelson, L. A., & Greevy, R. A. (2023). Family Typology for Adults With Type 2 Diabetes: Longitudinal Stability and Validity for Diabetes Management and Well-being. *Diabetes Care*, 46(11), 2058-2066. <https://doi.org/10.2337/dc23-0827>.

Meena, M., Meena, H., Meena, R., & Bishnoi, R. (2023). Enhancing tribal youth's knowledge and empowerment in goat farming: A quasi-experimental study of training impact on

production and marketing: Enhancing tribal youth's knowledge and empowerment in goat farming. *Journal of AgriSearch*, 10(3), 201–206. <https://doi.org/10.21921/jas.v10i03.13774>.

Mefi, N., & Asoba, S. N. (2020). Entrepreneurship strategy in a monopolised sector: case study of the print and publishing media sector in the western cape province of South Africa. *Academy of Entrepreneurship Journal*, 26(4), 1-6.

Meidutė-Kavaliauskienė, I., Činčikaitė, R., & Andrijauskaitė, M. (2023). Optimisation model of production processes as an example of the cosmetics sector. In *13th International Scientific Conference Business and Management 2023.*, Vilnius, Lithuania, May 11-12 (pp. 1-11). <https://doi.org/10.3846/bm.2023.1044>.

Mendes, J. A. J., Gerólamo, M. C., & Zuin, V. G. (2020). Modelo de maturidade para o agronegócio 4.0: uma revisão bibliográfica sistemática das dimensões de análise com base nos modelos aplicados a indústria 4.0. In *XXVI Simpósio de Engenharia de Produção, November 11-13 (pp. 1-14)*.

Mendes, J. D. J., Carrer, M. J., Vinholis, M. D. M. B., & Meirelles de Souza Filho, H. (2023). Adoption and impacts of messaging applications and participation in agricultural information-sharing groups: an empirical analysis with Brazilian farmers. *Journal of Agribusiness in Developing and Emerging Economies*, 1-18. <https://doi.org/10.1108/JADEE-09-2022-0194>.

Menon, M. E. (2022). Perceptions of stakeholders on the problems facing higher education: Implications for university governance and student engagement. *Student Engagement in Higher Education Journal*, 4(1), 70–87.

Mesquita, D. F. S., Nascimento, C. A. D., & Lima, P. V. P. S. (2023). Non-agricultural income, infrastructure and access to consumer goods in rural households in the northeast and south. *Revista de Economia e Sociologia Rural*, 61(4), 1-18. <https://doi.org/10.1590/1806-9479.2022.263246>.

Mohammed, R. A., Nadi, A., Tavasszy, L., & Bok, M. D. (2023). Data Fusion approach to identify distribution chain segments in freight shipment databases. *Transportation Research Record*, 2677(6) 310–323. <https://doi.org/10.1177/0361198122114704>.

Morka, O. T., & Aliku, I. H. (2022). Management disruptions and business growth of public and private sector enterprise in Delta state, Nigeria. *Journal of Management and Science*, 12(4), 144-155.

Nascimento-e-Silva, D. (2012). *Manual de redação para trabalhos acadêmicos: position paper, ensaios teóricos, artigos científicos e questões discursivas*. São Paulo: Atlas.

Nascimento-e-Silva, D. (2020a). *Manual do método científico-tecnológico: edição sintética*. Florianópolis: DNS Editor.

Nascimento-e-Silva, D. (2020b). *Regras básicas para redação acadêmica*. Manaus: DNS Editor.

Nascimento-e-Silva, D. (2021a). *O método científico-tecnológico: fundamentos*. Manaus: DNS Editor.

Nascimento-e-Silva, D. (2021b). *O método científico-tecnológico: questões de pesquisa*. Manaus: DNS Editor.

Nascimento-e-Silva, D. (2021c). *Handbook of the scientific-technological method: synthetic edition*. Manaus: DNS Editor.

Nascimento-e-Silva, D. (2023). *O método científico-tecnológico: coleta de dados*. Manaus: DNS Editor.

Nelliyat, P. (2023). Access and benefit sharing: An innovative financial mechanism for biodiversity conservation. In Oommen, O. V. et al. (eds.) *Biodiversity conservation Through access and benefit sharing (ABS) Himalayas and Indian sub-continent*. Cham: Springer International Publishing.

Nery, N. C. S. et al. (2022). *Espaços de sociabilidade e solidariedade na comunidade rural do Córrego Santa Rita (Ituiutaba, MG)*. Unpublished master thesis, Universidade Federal de Uberlândia, Ituiutaba, Brazil.

Nnamani, N. G., & Obediah, C. P. (2023). Determinants of youth participation in agribusiness activities in Ikwuano Local Government Area, Abia State, Nigeria. *Agro-Science*, 21(4), 13–18.

Nunes, A. P., Campelo Filho, E. G., & Benini, E. G. (2023). A produção de soja e sua influência nas variáveis socioeconômicas da região do Matopiba. *Gestão & Regionalidade*, 39(116), 1-19. <https://doi.org/10.13037/gr.vol39.e20237693>.

Nunes, A. P., Campelo Filho, E. G., & Benini, E. G. (2023). A produção de soja e sua influência nas variáveis socioeconômicas da região do Matopiba. *Gestão & Regionalidade*, 39(116), e20237693-e20237693. <https://doi.org/10.13037/gr.vol39.e20237693>.

Oktavia, R., Wihastuti, L., & Nurpita, A. (2020). Comparative study of fashion and convection SMIS in Yogyakarta, solo, and Pekalongan. *Review of Management and Entrepreneurship*, 4(1), 17-46. <https://doi.org/10.37715/rme.v4i1.1219>.

Osugi, S., Baek, S., Naganuma, T., Tochigi, K., Allen, M. L., & Koike, S. (2022). The effect of decreasing human activity from COVID-19 on the foraging of fallen fruit by omnivores. *Ecology and Evolution*, 12(12), 1-9. <https://doi.org/10.1002/ece3.9657>.

Pahl, J., Rødseth, H., & Strandhagen, J. O. (2023, September). Towards Smart Maintenance and Integrated Production Planning. In *IFIP International Conference on Advances in Production Management Systems* (pp. 765-778). Cham: Springer Nature Switzerland.

Prasetyo, Y. E., (2015). Beef Cattle Traditional Agribusiness Practices in Indonesia: Special Case in Subang, West Java. In *Third International Conference on Creativity and Innovations at (for/from/with) Grassroots [ICCIG]* (pp. 1-12).

Ramirez, A. G. R. (2023). *Nutritional and genetic characterization of dairy cows managed on pasture-based systems, identifying key aspects to improve their performance*. Unpublished PhD thesis, Virginia State University, USA.

Reis, J. G. M., & Machado, S. T. (2022). The role of logistics management in food supply chains. In Topcu, Y. E. et al. (ed.). *New Perspectives in operations research and management science: Essays in honor of Fusun Ulengin*. Cham: Springer International Publishing.

Roche, A. J., Rickard, L. N., Huguenard, K., & Spicer, P. (2022). Who's Tapped Out and What's on Tap? Tapping Into Engagement Within a Place-Based Citizen Science Effort. *Society & Natural Resources*, 35(6), 667-683. <https://doi.org/10.1080/08941920.2022.2056668>.

Schaefer, D., & Singleton, C. (2020). Recent changes in British wage inequality: Evidence from large firms and occupations. *Scottish Journal of Political Economy*, 67(1), 100-125. <https://doi.org/10.1111/sjpe.12225>.

Schumacher, S., Bildstein, A., & Bauernhansl, T. (2020). The impact of the digital transformation on lean production systems. *Procedia CIRP*, 93, 783-788. <https://doi.org/10.1016/j.procir.2020.03.066>.

Shang, Y., Xu, J., & Li, J. (2023). The impact of executive compensation incentive on corporate innovation capability: Evidence from agro-based companies in China. *Plos one*, 18(9), e0291517. <https://doi.org/10.1371/journal.pone.0291517>.

Siddique, M. A. B. (2018). *Supply chain management processes of some selected agricultural commodities in Bangladesh: Efficiency, constraints and a proposed model*. Unpublished Ph.D. thesis, University of Dhaka, Bangladesh.

Silva, F. L., Fushita, Â. T., Cunha-Santino, M. B., & Bianchini Jr, I. (2022). Adopting basic quality tools and landscape analysis for applied limnology: an approach for freshwater reservoir management. *Sustainable Water Resources Management*, 8(3), 1-15. <https://doi.org/10.1007/s40899-022-00655-8>.

Silva, M. D. R., Pimentel, M., Oliveira, B. R. B., & Mota, J. D. S. O. (2022). Environmental information disclosure: a study of agribusiness companies in Brazil. *Razão Contábil e Finanças*, 13(2), 1-24.

Simões, C. S., & Nascimento-e-Silva, D. (2020). Legal marketing: proposition for a conceptual definition. *Int. J. Private Law*, 9(4), 272-294. <https://doi.org/10.1504/IJPL.2020.114145>.

Singleton, C. (2019). The public-private sector wage differential in the UK: Evidence from longitudinal employer-employee data. *Economics Letters*, 174(1), 109-113. <https://doi.org/10.1016/j.econlet.2018.11.005>.

Soesilo, R. (2023). Supply Chain Performance Improvement Strategy in the Packaging Industry. *International Journal of Business and Applied Economics*, 2(2), 245-256. <https://doi.org/10.55927/ijbae.v2i2.2710>.

Solís-Lozano, J. A., Cuellar-Núñez, L., Vivanco-Vargas, M., Méndez-Gallegos, S. D. J., & Vasco Leal, J. F. (2022). Strategic and competitive advantages of the agricultural sector in Querétaro, Mexico. *Agroproductividad*, 15(2), 99-108. <https://doi.org/10.32854/agrop.v15i2.2099>.

Su, Z., Zhang, M., Sun, J., & Wu, W. (2023). Agribusiness diversification and technological innovation efficiency: AU-shaped relationship. *Agribusiness*, 39(2), 322-346. <https://doi.org/10.1002/agr.21785>.

Taghiyev, A. (2021). Content of Agrobusiness and Its Role in the Economic System. *3th International Postgraduate Scientific Conference on Economics and Management*, Ganja, Azerbaijan, June 4th to seventh.

Tarchi, L., Merola, G. P., Castellini, G., & Ricca, V. (2023). Behavior genetics: Causality as a dialectical pursuit. *Behavioral and Brain Sciences*, 46, e203. <https://doi.org/10.1017/S0140525X22002254>.

Tiwari, A., Rathaur, A., Srivastav, R., & Alapatt, F. J. Cognizance towards forensic dentistry- a questionnaire based study among dental professionals. *International Journal of Innovative Science and Research Technology*, 8(8), 2124–2129.

Toia, A. (2019). *Toward agriculture 4.0: Opportunities and threats of the agribusiness sector: An analysis of the risk management strategies developed by Brazilian SMEs to cope with commodity price risk*. Unpublished master thesis, Fundação Getúlio Vargas, Brazil.

Tolinggi, W. K., Salman, D., Rahmadanih, & Iswoyo, H. (2023). Farmer regeneration and knowledge co-creation in the sustainability of coconut agribusiness in Gorontalo, Indonesia. *Open Agriculture*, 8(1), 1-18. <https://doi.org/10.1515/opag-2022-0162>.

Umar, B. (2023). Is combatting money laundering an integrity issue? Insights from Nigeria. *Journal of Money Laundering Control*, Vol. ahead-of-print No. Ahead-of-print., 1–9. <https://doi.org/10.1108/JMLC-09-2023-0148>.

Vargas-Hernández, J. G., & Solís, C. A. J. (2019). Grupo Modelo: Analysis based on the industry of the giant beer company. In *International Academic Multidisciplinary Research Conference In Berlin 2019*, (pp. 253-262).

Wei, W., Yin, G., Xie, S., Sun, Q., Zhang, Z., & Li, G. (2023). The spatio-temporal patterns and influencing factors of different new agricultural business entities in China-Based on POI data from 2012 to 2021. *Agriculture*, 13(8), 1-26. <https://doi.org/10.3390/agriculture13081512>.

Xavier, D. L. D. J., & Reis, J. G. M. D. (2022). Social network analysis on agricultural international trade: A study on soybean, soybean cake and maize exports. *Chemistry Proceedings*, 10(1), 1-6. <https://doi.org/10.3390/IOCAG2022-12319>.

Zuana, M. M. M., & Ibad, M. S. (2023). The provision of accounting and financial support for BUMDes. *Sahwahita: Community Engagement Journal*, 1(1), 1-6.