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ESG GUIDELINES FOR AGRIBUSINESS: ACTIONS AND OPPORTUNITIES IN INTEGRATION SYSTEMS

DIRETRIZES ESG PARA O AGRONEGÓCIO: AÇÕES E OPORTUNIDADES EM SISTEMAS DE INTEGRAÇÃO

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Abstract

Brazil is one of the main players in global agribusiness and whoever adopts strategies with ESG guidelines will differentiate themselves. This article investigates how ESG (Environmental Social and Governance) guidelines can contribute to integration systems in Brazilian agribusiness. The work is a systematic literature review using Parsifal® Software. The result was 126 articles analyzed. We contribute theoretically with 126 guidelines for ESG in agribusiness and managerially with techniques and applications. We suggest future studies that address empirical evidence of ESG in different business models and the impacts on risk management.
Keywords: ESG. Agrobusiness. Integration System.

Resumo

O Brasil é um dos principais *players* do agronegócio global e quem adotar estratégias com diretrizes ESG, se diferenciarão. Este artigo investiga de que maneira as diretrizes do ESG (Environmental Social and Governance) podem contribuir em sistemas de integração no agronegócio brasileiro. O trabalho é uma revisão sistemática de literatura com o Software Parsifal®. O resultado foi 126 artigos analisados. Contribuímos teoricamente com 126 diretrizes para o ESG no agronegócio e gerencialmente com técnicas e aplicações. Sugerimos estudos futuros que abordem evidências empíricas do ESG em diferentes modelos de negócios e os impactos na gestão de riscos.
Palavras-chave: ESG. Agronegócio. Sistema de Integração.

Introduction

ESG Guidelines are sets of good practices and standards that aim to demonstrate whether a company's drivers are engaged in social, environmental and governance, and they are increasingly important strategies for companies to provide contributions arising from ESG (Clark & Dixon, 2023). In Brazilian agribusiness, ESG strategies are evolving and are helping large players to establish strategies and legitimize best practices (Brazil, 2023).

ESG strategies have evolved into a methodology for application in all business models and generate outstanding visibility for companies, evidencing the effort to promote sustainability and improve performance (Aldowaish et al., 2022). Adopting the ESG offers means to rewrite the terms of management and face the challenges of markets aggravated even more by Covid-19, as well as to promote the strengthening of the brand and to generate good references in the market and society (Atz et al., 2023).

Integrating ESG as a strategy in agribusiness improves investments, reduces economic, environmental and social asymmetries and provides potentially robust results to determine successful behavior (Madden, 2023). The integration of ESG into the planning and governance environment of companies' operations will improve decision-making and facilitate the transition to a high degree of generality in the solutions and legal structures adopted by companies (Komarnicka & Komarnicki, 2022).

From the accelerated process of global urbanization, themes that permeate the ESG context in different realities, echo as strong aspects to be debated and studied with a view to promoting the ecological balance of the environment (Teixeira Dias et al., 2023). According to the ESG guidelines, actions aimed at governance for environmental, economic and social commitment should be objectives of responsible companies, and integrating and improving these guidelines will boost performance and improve risk management (Jin, 2022).

It is essential that companies focus on relevant and strategic themes and that they respond to the growing demand to follow the guiding spheres to guide the ESG guidelines in the company's processes (Douglas et al., 2017). The sooner the company prepares to follow and implement, the greater its chances of success (Shea & Hutchin, 2013). This research aims to investigate how ESG guidelines can contribute to governance in integration systems?

ESG in agribusiness

Companies that adopt strategies and business models aligned with the best ESG practices will differentiate themselves in the market and create the foundations for their growth, as Brazilian agribusiness projections point to growth of more than 20% by the year 2030 (Brazil, 2023). To support projected growth, ESG guidelines in agribusiness mean including environmental, social and governance issues as drivers capable of making decisions more efficient and ethical (Archer, 2022).

The structure of agribusiness includes agents from different stages of the production process and agribusiness products and services cover different types of companies and individuals that circulate the activities of the production unit, from input suppliers to product distributors (Agripino et al., 2021). The scale of activities in the agribusiness value chain creates a favorable environment for the production of wealth, at the same time that it is a sector widely distributed and capillarized throughout the country (Brazil, 2023).

The integration of ESG criteria is considered a responsible and sustainable approach to business management because it is seen as a valuable argument, not because of some social, environmental or even financial benefits, but because it helps companies govern more effectively (Archer, 2023). However, it is clear that ESG guidelines point out paths for beneficial actions and are environmentally related to climate change, use of renewable energy, greenhouse gas emissions, pollution, waste management, conservation of natural resources. Socially, business ethics, management of relationships with stakeholders, diversity and inclusion, human rights, fair labor practices, occupational health and safety are considered, and corporate governance covers aspects such as transparency, provision accounts, risk management, independence of boards of directors and executive remuneration (Chouaibi & Zouari, 2021).

Companies that are concerned with ESG tend to be more aware of their social and environmental impact, in addition to presenting better management and governance practices, thus mediating behavior in support of the introduction of ESG guidelines (Jin & Kim, 2022). Brice, Cusworth, Lorimer and Garnett (2022) point out that ESG specificities permeate the entire universe of the company, from animals to the general performance of assets and liabilities, thus diversifying the company's policy of action to know, predict and concentrate efforts to reduce operational risks.

Decreasing the risks of operations implies a contemporary understanding of systems, because ESG integration creates connections and opens up new ways and directions for the company to analyze and make decisions, allowing it to act in integrative systems (Parfitt, 2020). Another key point that the ESG promotes in an integration system is the interrelationship of the guidelines, bringing to light the importance of adoption and also its commitment to the ethics and social aspects of the company, since to achieve better levels, it must be assuming a leadership position (Das, 2023).

Conducting work in agribusiness, as well as in other segments of the economy, constantly puts the company in the situation of defining paths to follow, that is, of making choices in the face of existing options and often non-routine decisions are needed that can impact significantly in the three spheres of ESG (Lee et al., 2021). The importance of agribusiness, combined with the need to act ethically, presupposes a corporate culture of assertive and targeted strategic decisions in ESG, and for this reason, the need to invest strategically in governance is relevant and indispensable, since this finding is in line with the growth of this set of standards to which companies and producers can naturally adhere, allowing a robust integration system for stakeholders (Helfaya et al., 2023).

ESG as an integrative system

Thinking about ESG has become an ally of companies from different areas and is increasingly relevant to attract investors, increase business productivity and profitability, and thus positively impact the entire business (Baid & Jayaraman, 2022). In Agribusiness it is no different, especially if we look at the challenges faced by the sector, such as the pressure to increase productivity to guarantee food security in the world, which shares space with the need to conserve natural resources and minimize negative environmental impacts (Cherkasova & Nenuzhenko, 2022).

Thinking about ESG as a way to integrate systems for the sustainable development of agribusiness requires an integral approach, which considers not only productivity and profitability, but also the entire impact arising from its operations (Sciarelli et al., 2021). The adoption of ESG practices in agribusiness, therefore, is fundamental and it is important to remember that they also bring benefits to all those involved, who can improve their reputation, attract investments, minimize challenges and foster technological innovation (Wu et al., 2022).

The challenges of Brazilian agribusiness organizations are with succession, growth, resources to make the strategic plan viable, entry of strategic partners, new global regulations such as ESG, sanitary regulations and traceability, capital for expanding investments, changing global consumer behavior , technological challenge and global competition (Brazil, 2023). A solid ESG posture to face challenges requires companies to demonstrate to their investors, consumers and partners a sincere intention to do good for the community and conduct their business with integrity, caring about ESG in full to seek the use of the best governance precepts (Medina & Thomé, 2021).

ESG has been on the agribusiness agenda and has been strengthening business environments in a significant and robust way, with good references for shareholders and society, that the business plan is linked to a promising and sustainable perspective (Jesus & Nascimento, 2021). In this sense, increasing the transparency of the implementation of practices is necessary to strengthen results and to ensure that process variables are identified, corrected and aligned in the implementation plan for good ESG performance and sustainable growth (Wang & Jin, 2023).

In order to achieve sustainable development, the ESG promotes integration and creates understanding for the actors in the processes of the correct forms and operationalization of activities, giving meaning and integrated contribution to the social, environmental and governance structure (Favato et al., 2021). This context justifies the surprising implementation of ESG guidelines to the strategic drivers that companies are working on and improving, with the purpose of establishing strong connections to resolve obstacles and aim for successful implementation (Norang et al., 2023).

Innovation in this area has seen the development of ESG measures and metrics for companies with the most different business models, and there is a widespread concern about evolving and intervening in systems integrating ESG into all business processes and metrics (Clark & Dixon, 2023). The results demonstrate that there is a significant relationship between business and the results obtained and reveal that when the ESG component is integrated into the company, it promotes a positive impact on performance and minimizes environmental, social and governance gaps (Buallay, 2021).

Implementing ESG can gain a competitive advantage and ensure that all stakeholders have access to the company's ESG data (Wang & Jin, 2023). The implementation will develop integration and demonstrate the actions that are being performed, and these actions will show the metrics that the business performs (Das, 2023).

Methodological procedures

This study is a Systematic Literature Review on ESG, governance, integration and agribusiness. The search strings “ESG” AND “Governance” AND “integration”, "ESG" AND "agribusiness" and "ESG" AND "poultry" OR "pig*" OR "swine*" OR "chicken*" were used. The search was performed on July 27, 2023, using the Parsifal® software in the Scopus and Web of Science databases (Kitchenham & Charters, 2007). The files were imported from the Parsifal® Software in BibteX format and totaled 371 articles. After excluding duplicates (229 articles) and rejected ones (16 articles), a total of 126 articles were analyzed in full. Figure 1 shows the execution of actions to carry out the work.

The general criteria of quality, inclusion and exclusion were applied during the construction process of the questions in the Parsifal® Software (Figure 1). In the PICOC plan (Population, Intervention, Comparison, Outcome, Context) the search strings “ESG” AND “Governance” AND “integration”, "ESG" AND "agribusiness" and "ESG" AND "poultry" OR "pig*" OR "swine*" OR "chicken*" were included in the Population; Intervention the words agribusiness, poultry, pig, Chicken and integration; Comparison included systematic literature review; Outcome included article, review, research paper, tools, studies, methodologies, guidelines and indicators; Finishing with Context, including studies, agribusiness, integration system and production chain.

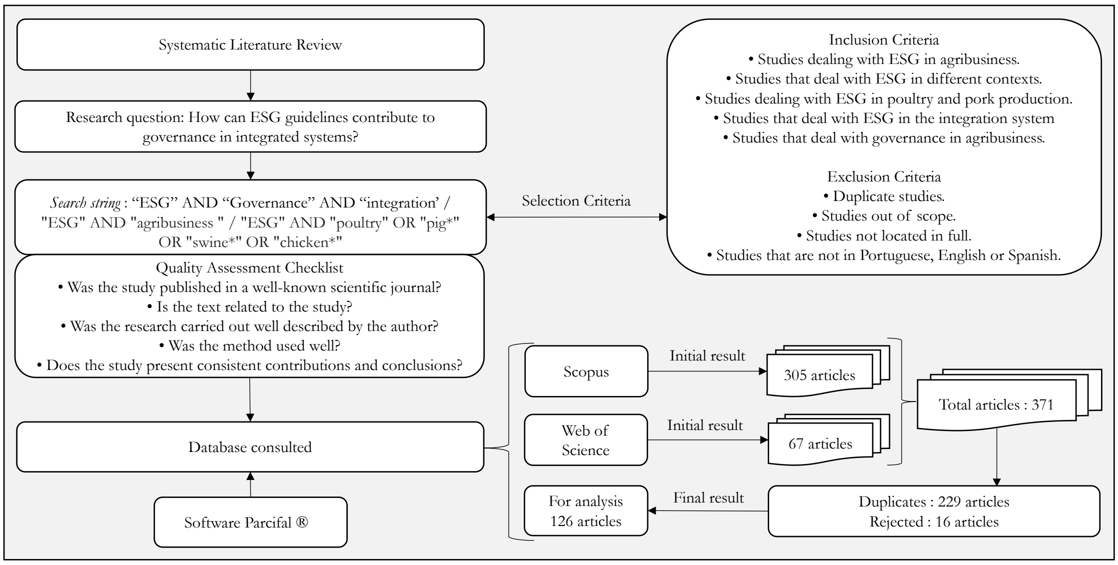

Figure 1 - Execution of actions

The main research question was how ESG guidelines can contribute to governance in integration systems and as supporting questions it was included: What ESG aspects of poultry and pork production influence the integration system? Does the integration system impact on producer satisfaction? Do ESG guidelines influence the integration system and do ESG guidelines impact producer satisfaction? The parameters for data extraction were the authors, year of publication, research challenges, country of origin, ESG variation and journals they published.

Presentation and analysis of results

ESG guidelines such as guidelines for decision-making in a given area, process or activity establish guidelines for conduct, in addition to promoting uniformity that facilitates the management and control of processes. These directives cover 3 spheres: environmental, social and governance, and highlight a set of factors that guide companies in the path of applicability of the spheres to the context in which they are inserted.

ESG drivers comprise 3 spheres. In the environmental sphere factors on energy consumption, use of potable water, resilience to climate change, environmental policy, land use, management of natural resources, management of waste and hazardous materials. Within the scope of the social sphere, factors related to consumer rights, corporate philanthropy, data security and customer privacy, diversity issues, employee engagement, community health and safety, human rights, responsible people management, human capital management and for the sphere of governance with approaches in the accounting and consulting process, board composition, business ethics, compliance, executive compensation, corporate structure, transparency, governance of funds, political contributions, reports and disclosures, succession planning (Table 1).

Table 1
Sphere and guidelines

Sphere	Guidelines
(1 ES) Environmental Sphere	Innovation to significantly reduce greenhouse gas emissions (Madden, 2023); Consumption policies for sustainable production (Teixeira Dias, by Aguiar Dutra, Vieira Cubas, Ferreira Henckmaier, Courval, & de Andrade Guerra, 2023); Sustainability initiatives across the value chain (Das, 2023); Sustainability in business practices to be able to proceed towards natural resource management (Cerciello, Busato, & Taddeo, 2023); Results dependent for a legitimate sustainability of natural resources (Dreyer, Moreira, Smith, & Sharma, 2023); Efficient frontier for construction processes of sustainable management and consumption portfolio (Steuer, & Utz, 2023); Sustainable development as a new phase to improve the dissemination of information on greenhouse gas emissions and resource use (Dong, Shao, Xin, & Lu, 2023); Green finance as strategies for renewable energy (Meng, & Shaikh, 2023); Implementation of environmental measures to increase sustainability performance (GIebhardt, Thun, Seefloth, & Zülch, 2023); Explore the relevance of ESG factors for a sustainable and innovative business model (Bhattacharya, & Bhattacharya, 2023); Inclusion of development opportunities and standards for responsible use (Ronalter, Poltronieri, & Gerolamo, 2023); Environmental concerns to influence investment decisions (Sarkar, Moolearambil Sukumaran & Datta, 2023); Financial sustainability for environmental investments across multiple portfolios (Brice, 2022); Sustainability and efficiency in production (Shamsuddoha, & Woodside, 2022); Sustainability to improve financial performance (Aldowaish, Kokuryo, Almazyad, & Goi, 2022); Animal and production welfare to improve integration and decrease deforestation (Brice, Cusworth, Lorimer, & Garnett, 2022); Level of integration to combine sustainability in business processes through environmental policy (Dicuonzo, Donofrio, Iannuzzi, & Dell'Atti, 2022); Develop assets that represent environmental integration (Zerbib, 2022); Solutions for proactive sustainable development with inter and transdisciplinary integration (Hofmann, 2022); Systematics of ecology aligned with environmental policies to seek sustainable finance (Bortnikov, & Lyubich, 2022); Balance level for efficient management of hazardous materials (Chen, Su, & Chen, 2022); Sustainable and fully integrated equity systems (Sahoo, & Kumar, 2022); Environmental Strategies for Revitalization and Modernization (Wu, Hu, Lyulyov, Pimonenko, & Hamid, 2022); Process to reverse polluting results with the introduction of green management (Baker, Hollifield, & Osambela, 2022); Investment in sustainability to contribute to the management of natural resources (Edmans, & Kacperczyk, 2022); Efficient consumption for a growing consumer demand not to generate waste (Gärling, & Jansson, 2021); Demonstrate performance and publicize environmental activities and policies (Buallay, 2021); Integrated vision to generate sustainable and ecological stability (Cho, Lehner, & Nilavongse, 2021); Performance behavior for sustainable development (Vărzaru, Bocean, & Nicolescu, 2021); Develops portfolios to incorporate the dimensions of return and sustainability (Chen, & Mussalli, 2020); Innovation for sustainability in order to produce resilient results to global changes (Manocha, & Srai, 2020); More responsible and resilient businesses for their impacts on the environment, climate and water (Alexander, 2020); Management as an environmental policy to promote resilience (Araujo, Brito, Veloso, de Leite, Alves, da Hora Junior, & de Queiroz, 2020); Integration of environmental material priorities into the strategy for a meaningful and sustainable impact (Espahbodi, Espahbodi, Juma, & Westbrook, 2019); Integration of the environment as a guiding principle in the processes by those who seek efficiency and effectiveness in aligning initiatives and interventions for sustainability (Whitelock, 2019); Management of environmental resources for performance (Giese, Lee, Melas, Nagy, & Nishikawa, 2019); Engagement for sustainable development as a legitimation tool with stakeholders (Lokuwaduge, & Heenetigala, 2017); Policies and practices to manage sustainability issues (Shea, & Hutchin, 2013).

(2 SS) Social Sphere	Sovereignty for different needs (Pascoal, Juwana, Karuniasa, & Djojokusumo, 2023); Social culture for disseminating and disseminating ESG to stakeholders (Helfaya, Morris, & Aboud, 2023); Contribute to the relationship and engagement of the company's people and stakeholders (Almici, 2023); Corporate Social Responsibility to contribute strongly in times of crisis (Atkins, Doni, Gasperini, Artuso, La Torre, & Sorrentino, 2023); Strategies to produce better corporate and responsible results (Harasheh, & Provasi, 2023); Responsibility for performance and safety in people (Uyar, Abdelqader, & Kuzey, 2023); Management of components and diversities for the performance of social responsibilities (Kwon, & Shin, 2022); Importance of the board to improve corporately (Lin, Chang, & Hung, 2022); Corporate decisions for reliability (Jonsdottir, Sigurjonsson, Johannsdottir, & Wendt, 2022); Philanthropy with social responsibility to reduce uncertainties in the long term (Hoang, Tran, Vu, & Vu, 2022); Engagement to carry out business ethics (Hassan, Chiaramonte, Dreassi, Paltrinieri, & Piserà, 2022); Social responsibility for funding in all structures (Baid, & Jayaraman, 2022); Social response applied to investment to engage human development (Ashraf, Rizwan, & L'Huillier, 2022); Social responsibility as a goal to influence corporate data philanthropy (Cristea, Noja, Thalassinos, Cîrciumaru, Ponea, & Durău, 2022); ESG benefits to balance and maintain stakeholder engagement (Teng, Ge, Wu, Chang, Kuo, & Zhang, 2022); Social focus to increase corporate and community performance (Ronalter, Bernardo, & Romaní, 2022); Corporate autonomy to perform joint engagement and integration (Sorensen, Mussalli, Lancetti, & Belanger, 2022); Impact on company performance and organizational agility on engagement issues (Jianqiang, Rong, & Juan, 2022); Social governance to consolidate the ESG integrative potential (Lim, Ciasullo, Douglas, & Kumar, 2022); Positive impact on human capital giving quality and legitimacy (Arif, Gan, & Nadeem, 2022); Cooperative competitiveness to improve social welfare (Tanaka, & Tanaka, 2022); Responsible management for a positive relationship in the short term (Diaye, Ho, & Oueghlissi, 2022); Criteria for identifying corporate actions and integrating the factors (Park, & Oh, 2022); Make public commitments to ESG and sit on boards (Burke, 2021); Ethical commitment to specialized management level (Chouaibi, & Zouari, 2021); Corporate social responsibility to increase the legitimacy of the company's stakeholders and impact people management (Garzon Jimenez, & Zorio-Grima, 2021); Conventional actions that confirm the importance of engagement (Rehman, Abidin, Ali, Nor, Naseem, Hasan, & Ahmad, 2021); Legitimation of responsible activities and initiatives (Bauckloh, Schaltegger, Utz, Zeile, & Zwergel, 2021); Drive to increase institutional accountability and engagement (Robinson, Parker, Carey, Foerster, Blake, & Sacks, 2020); Datasets demonstrating the effectiveness of human management and learning (Raman, Bang, & Nourbakhsh, 2020); Relevant combination of rights to generate value in shares (Kaiser, & Welters, 2019); Investors with a social nature to face challenges and improve the safety of communities (Escrig-Olmedo, Rivera-Lirio, Muñoz-Torres, & Fernández-Izquierdo, 2017); Integrate social processes to manage risk and improve transparency (Van Duuren, Plantinga, & Scholtens, 2016); ESG integration as a mechanism to increase value (Nitani, Carriere, & Bleackley, 2015); Security and responsibility for long-term competitive advantage (Nielsen, & Noergaard, 2011).

3 GS) Governance Sphere	Gradual evolution towards green investment instruments (Ramani, Henne, Kotsopoulos, Dickson, & Dickson, 2023); Legal regulations for analyzing tools, instruments, norms and guidelines (Beisenbina, Fabregat-Aibar, Barberà-Mariné, & Sorrosal-Forradellas, 2023); Corporate investment to reduce business risk (Atz, Van Holt, Liu, & Bruno, 2023); Institutional characteristics such as the transparency process and influence on the disclosure structure (Sun, Xu, Ding, & Cao, 2023); Economically significant and transparent changes contributing to planning (Moss, Naughton, & Wang, 2023); Capture of evidence and proposals for opportunities for continuous improvement of governance (Gu, Dai, & Vasarhelyi, 2023); Compliance in the implementation of ESG strategies to reduce risks (Galletta, & Mazzù, 2023); Contributions to all stakeholders involved (Newell, 2023); Tool for decision-making on ESG joint factors (Gumerova, & Rizvanovab, 2023); Planning process for building differentiated organizations (Norang, Støre-Valen, Kvale, & Temeljotov-Salaj, 2023); Good practices for transparency and integrated risk management (Principale, & Pizzi, 2023); Performance as a competitive advantage of processes (Wang, & Jin, 2023); Process to face challenges to the legitimacy of the sector globally (Clark, & Dixon, 2023); Motivation and challenges to capture adoption and implementation practices (Zumente, Bistrova, & Lāce, 2022); Risk management for return on investments (Jin, 2022); Efficiency of investments for integrated management (Harymawan, Nasih, Agustia, Putra, & Djajadikerta, 2022); Investment in incentive policies (Komarnicka, & Komarnicki, 2022); Information technology for integration and immersion of technical skills (Botes, Davey, Esposo, & Smit, 2022); Recognition and work by employees for changes in accordance with the ESG strategy (Jim, & Kim, 2022); Corporate financial performance driven by transparency (Cherkasova, & Nenuzhenko, 2022); Corporate ESG performance is conditioned by the level of resources and accounting process (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022); Determine effectiveness in terms of ESG to highlight distinct values of transparency (Pishchalkina, Pishchalkin, & Suloeva, 2022); Business integration in providing guidance to executives on ESG for business transparency (Behl, Kumari, Makhija, & Sharma, 2022); Investment with planning to promote returns (Carroux, Busch, & Paetzold, 2022); Classification method for negotiations and inclusion of costs and management fees as a risk strategy (Lee, Fan, & Wong, 2021); Complete ESG integration for a transparency framework (Sciarelli, Cosimato, Landi, & Iandolo, 2021); Examine the level of inclusion of investments in initiatives to integrate ESG criteria (Alda, 2021); Disclosure and transparency of ESG factors added to the impact on the performance of the corporate structure (Kim, & Li, 2021); Responsible and transparent investment integrated into the investment process (Väänänen, 2021); Structural process for synergy between all process factors (Favato, Neumann, Sanches, Branco, & Nogueira, 2021); Intensify the governance process to minimize gaps (Blitz, & Swinkels, 2021); Contributions to the transformation of governance (Medina, & Thomé, 2021); Governance as quality in compliance with board guidelines and disclosures (Arif, Sajjad, Farooq, Abrar, & Joyo, (2021); Integration of governance for a degree of compliance (Efimova, Volkov, & Koroleva, 2021); Governance to improve performance and boost ESG (Fan, & Michalski, 2020); Strategies for investments and decision-making (Parfitt, 2020); Process to address and provide transparency in governance (Zaccone, & Pedrini, 2020); Impact of integration to rebalance of risks and strategies applied to the portfolio (Ielasi, Ceccherini, & Zito, 2020); ESG performance as a high and long-term corporate strategy (Chevrollier, Zhang, van Leeuwen, & Nijhof, 2020); Mission-oriented portfolio aiming to reduce risks reputational risks and, in particular, governance issues (Fritz, & von Schnurbein, 2019); Data quality for assertive investment decisions (Friede, 2019); Behavior for assessing cash flow performance and financial variables (Giese, Lee, Melas, Nagy, & Nishikawa, 2019); Businesses focused on performance, compliance and compensation (Aluchna, & Roszkowska-Menkes, 2019); Institutional investment to contribute to integration and transparency (Moikwatlhai, Yasseen, & Omarjee, 2019); Integrate ESG planning to improve disclosures and transparency (In, Rook, & Monk, 2019); Planning and adjustments that encourage and promote responsible financing (Francis, Chen, & Lee, 2019); Full integration and engagement to drive investments (Amel-Zadeh, & Serafeim, 2018); Investment strategies embedded in business opportunities (Sherwood, & Pollard, 2018); Bender, Bridges, He, Lester, & Sun, 2018); Integration to drive economic performance ((Maniora, 2017; Syed, 2017); Governance and planning to impact business models (Schramade, 2016); Produce better economic results with strategies aligned with governance (Peiro, Segarra, Mondejar, & Vargas, 2013).

The importance of guiding, showing the direction or path to follow, is fundamentally relevant in the context of sphere applications, since it will establish foundations and paths for companies' management to improve. All guidelines contribute, promote, improve, leverage and make the company more attractive to stakeholders, as well as identify strategic opportunities and promote increased resilience in the face of socioeconomic and environmental challenges (Table 1). The contribution is to build a stronger corporate brand with the potential to gain market value and pave the way for sustainable development. The promotion generates stricter standards of control and compliance and collaborates with the improvement in the sense of providing satisfaction to stakeholders and strengthening alignment with society, as it boosts revenue growth and enables cost reduction through the management of natural resources.

The results show that ESG grew from 2019 onwards and authors such as Jesus and Nascimento (2021) and Atz, Van Holt, Liu, and Bruno (2023), point out that the new management to face the challenges of the market involves adoption of ESG in the structure of the company (Figure 2). The spheres of the ESG collaborate towards sustainable development, which considers healthy business management with an active focus on social matters and governance as purposes.

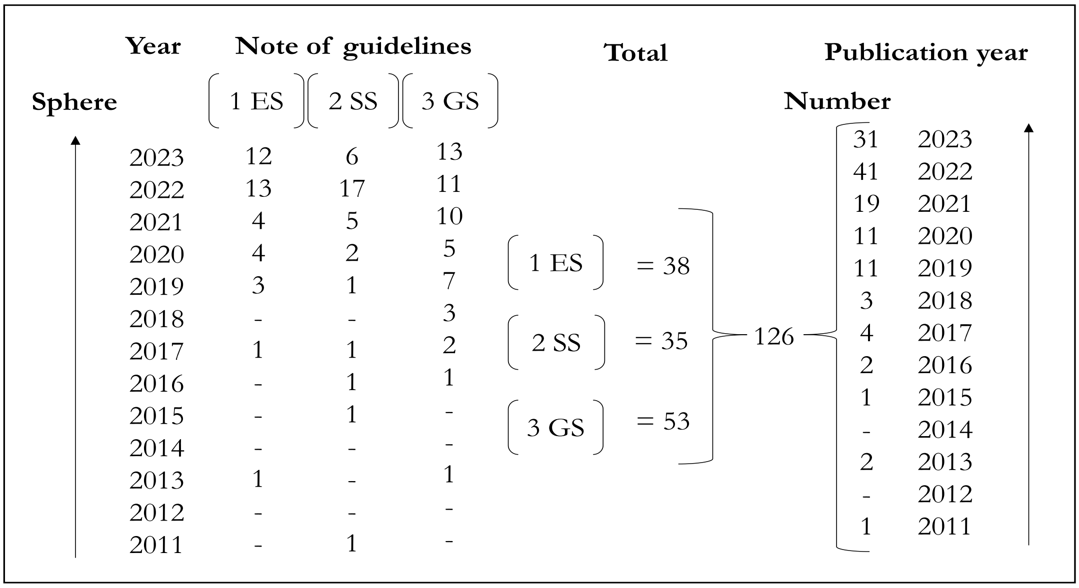

Figure 2. Number of notes per sphere and number of publications per year

Furthermore, authors such as Clark and Dixon (2023) and Helfaya, Morris and Aboud (2023) emphasize that the growth of ESG can raise the level of the company's internal policies and that it will automatically impact stakeholders (Figure 2). The impacts highlighted mean that the company builds a holistic view of ESG, to understand the guidelines and ways to implement and monitor results.

Pointing to agribusiness important techniques that can be implemented directly or gradually, depending on the structural and management level at which the company is located (Figure 3). The adoption of ESG practices establishes joint factors and functions to directly or gradually prepare the company's departments, areas, structures to implement the environmental, social and governance aspects as integrated tasks in the routine. A redesign of activities to allow integration may be necessary, as well as strategies for training people, setting goals, monitoring and disseminating results.

The work of all those involved will improve the results and generate credibility of the data obtained, as well as allow measuring the results and taking new measures to redirect the practices according to the objectives and goals. The taxonomy of the ESG guidelines deserves to be thought through and redesigned for practical use, not just for specific sectors of the company, but for the entire structure of the company.

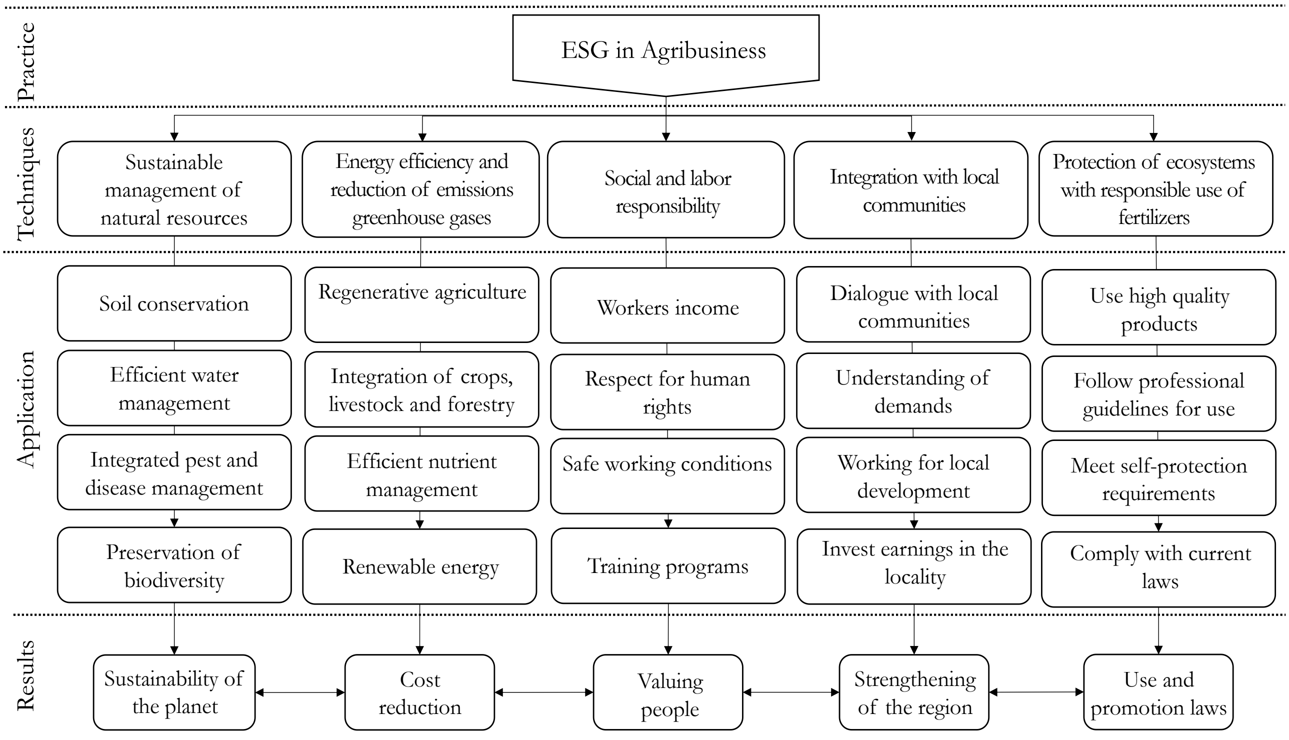

Figure 3. ESG practice in agribusiness

Sustainable management of natural resources is the responsible use of natural resources, which is one of the most important techniques of ESG practices in agribusiness, because they are finite and population growth forecasts remain very high (Figure 3). This application involves the implementation of agricultural techniques that reduce the environmental impact, such as the use of soil conservation methods, the efficient management of water use, the integrated management of pests and diseases and the preservation of biodiversity to generate sustainability for the planet. Brice, Cusworth, Lorimer, and Garnett, (2022), mention that sustainable management actions collaborate for a more comprehensive and robust sustainability to become lasting.

The technique of energy efficiency and reduction of greenhouse gas emissions, the search for energy efficiency in parallel with the reduction of greenhouse gas emissions, is another very important factor of ESG in agribusiness (Figure 3). The technique can be implemented through the adoption of practices that reduce greenhouse gas emissions, for example practices related to regenerative agriculture, such as direct planting, conservation practices, crop rotation, integrated crop and livestock systems and crop integration, livestock and forestry, efficient management of nutrients and fertilizers with a low carbon footprint, integrated pest and disease management, use of more efficient types of irrigation. According to Gu, Dai, & Vasarhelyi, (2023) the use of innovative and practical technologies that reduce energy consumption or the use of renewable energies in agricultural operations are also important for increasing energy efficiency and reducing greenhouse gas emissions. greenhouse effect as well as cost reduction.

Social and labor responsibility as a technique, although the sustainability agenda is much more related to the protection of the environment, the letters "S" and "G' of the acronym must not be forgotten and the practices must also focus on the social aspect of agribusiness with the same importance (Figure 3). Valuing workers and respecting human rights are fundamental and these, in turn, involve compliance with labor standards, combating child labor and slavery, guaranteeing safe working conditions and implementing training programs and development, which results in valuing people, and Archer (2022) mentions that it is the act of seeing people as ethical subjects and human beings.

The technique of integrating with local communities generates respect and engagement in communities, and this is very importante (Figure 3). This implies establishing dialogues to listen to demands and this directly contributes to local development, since resources are applied in the surroundings and thereby strengthening the region. Das (2023) comments that initiatives of this magnitude achieve better levels of sustainable performance.

In the technique of protecting ecosystems and responsible use of fertilizers, it is understood that they are indispensable, therefore, their responsible administration is essential to guarantee food security (Figure 3). For this to be done in accordance with the ESG, it is important to think about the role of fertilization in the environmental, social and economic sustainability of activities. It is necessary to use only efficient and high quality products that cause the least possible impact on nature. With this, complying with current laws makes the technique more collaborative for the promotion of laws and Gebhardt, Thun, Seefloth and Zülch (2023), point out that the efficient performance of the ESG establishes a joint quality relationship at all times to seek better and lasting results.

Although techniques and applications are indicated vertically, both techniques and applications can be used together and according to the company's reality, aiming at interrelated global results. It is relevant for company management to fit ESG into investments and according to Uyar, Abdelqader and Kuzey (2023), companies that adopt social and environmental responsibility practices demonstrate that they care about the environment and the society in which they are inserted, and this is a posture valued by customers, investors and employees, who tend to choose companies that have this type of commitment.

A second relevant factor is about risk reduction and value creation, because companies that adopt sustainable practices tend to have less environmental, social and governance risks, which can be translated into less exposure to fines, lawsuits, loss of customers and damage to reputation. Risk management as a set of coordinated activities that aim to manage and control the organization in relation to potential threats, promote ESG to better levels and automatically improve value generation (Galletta & Mazzù, 2023).

As a third relevant factor, access to capital is pointed out, where investors have shown themselves to be increasingly interested in companies that adopt sustainable practices, which can result in greater access to capital and better financing conditions. According to Dong, Shao, Xin and Lu (2023), a company that has sustainable performance is perceived by financial institutions as conducive to accessing financing.

Meng and Shaikh (2023) say that it is strategic for companies to adopt green finance with the inclusion of ESG in investment decision processes. As a fourth relevant factor and pointed out as a global trend, is the application of ESG in all business models, where ESG generates recognition, adds best practices and promotes synergy in business actions to obtain better results in all processes, helping in the pursuit of environmental, social and governance sustainability.

Final considerations

This article investigated how ESG guidelines can contribute to integration systems in Brazilian agribusiness. Through a systematic literature review, using Parsifal® Software, we examined the Web of Science and Scopus databases and obtained 371 articles, which after initial analysis, duplicates and rejected articles were removed, resulting in 126 articles that were read and analyzed in full.

Brazilian agribusiness is considered a global reference, and ESG guidelines are on the radar of agribusiness companies. ESG is an opportunity to differentiate businesses, improve risk management and access investments. The guidelines that ESG recommends are of fundamental relevance, as they establish guidelines for company management to execute.

ESG guidelines as guidelines for decision-making in a given area, process or activity establish conduct drivers that cover 3 spheres, environmental, social and governance. We cited 126 guidelines highlighted by the authors of the systematic literature review, of which 38 were in the environmental sphere, 35 in the social sphere and 53 in the governance sphere. All guidelines contribute to promoting and enhancing strategies to increase companies' resilience and build a stronger brand with increased market value. The results show that ESG has been growing since 2019 and the results show that it is important to manage and face market challenges.

The 38 notes in the environmental sphere demonstrate respect for the attitudes that companies take in relation to the impacts of their activities on the environment. Energy efficiency, for example, is an important concern, as knowing and implementing ways to optimize energy use prevents waste and reduces internal expenses. Another important point that impacts the environment is the waste generated by the business. Both companies that manufacture their products and those that provide services generate consequences with their activity. Therefore, knowing how to dispose of it correctly and also recycling what is possible are important initiatives.

In relation to the 35 notes in the social sphere, it is highlighted that companies are made up of people and they are the ones who move processes and streamline activities. Employees, customers, partners, investors, all of these audiences are included in the social sphere. Being a company that values its workforce and respects labor laws and rights is an important point in management and this is reflected in the team's engagement with the mission, vision and values of the business, in addition to motivating professional development. A well-executed job leads to satisfied customers with deliveries, which helps build brand loyalty and contributes to the solidity of the business.

In the sphere of governance, the 53 notes direct to the company's administrative practices. Every business needs a good management base to create processes, hierarchies and behaviors that organize daily activities. In this scenario, the company organization comes into play, the people who make decisions about the direction of the business. The company's conduct, based on its values, is also another important aspect of the governance sphere. This is because those who work in the business need to share the values and follow work conduct so that the environment is organized and healthy to share. Remuneration policies, career plans, relationships with public entities and bodies and ombudsman channels are other tasks that are part of efficient governance.

We point out important techniques for agribusiness that can be implemented directly or gradually, depending on the structural and management level at which the company is located. Adopting ESG practices allows for credible integration and deserves to be thought about and redesigned according to the reality of each company. ESG practices in agribusiness for sustainable management of natural resources, energy efficiency and reduction of greenhouse gas emissions, social and labor responsibility, integration with local communities and protection of ecosystems and responsible use of fertilizers, establish application methods to obtain of robust results.

Although the techniques and applications are pointed out vertically, both techniques and applications can be combined and in accordance with the company's reality, and it becomes relevant to fit ESG into investments. A second relevant factor is about the reduction of risks and the generation of value that ESG develops. As a third relevant factor, access to capital is highlighted, where investors have become increasingly interested in companies that adopt sustainable practices, as well as improving access to financing and as a fourth relevant factor, ESG is a global trend for all models to assist in the pursuit of environmental, social and governance sustainability.

Following the global trend and being a company with ESG practices means understanding each of the spheres, understanding the positive and negative impacts of the company's operations and working to minimize or eliminate negative impacts. As advantages of positive impacts, the company can achieve better results, enhance the brand, control risks and build robust management with increased competitiveness.

We contribute to theory with 126 guidelines for ESG in agribusiness and to management practice with techniques and applications aiming for comprehensive and robust results. We suggest future studies that address empirical evidence demonstrating ESG (environmental, social and governance) performance in different business models, as well as investigating how ESG impacts risk management to generate financial performance.

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