Indicators' selection method for implementation of sustainability reports in agro-industrial cooperatives

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Abstract: This work aims to propose a method to select sustainability indicators (SIs) that are most pertinent to the activities of agro-industrial cooperatives, through the study of sustainability reports in the global reporting initiative (GRI) model. The method is composed of three stages: study the report model, analyse the field of application, and select SIs that best suits the agro-industrial sector. For the selection of SI, three criteria were applied: frequency of appearance, approach to the Sustainable Development Goals (SDGs) and applicability. As a result of this study, 42 selected indicators were obtained within the economic, environmental, and social aspects. The main contribution of this paper is the systematisation of a method to select SIs aligned to the activities of agro-industrial cooperative. Another contribution is that selected indicators, also address SDGs, showing their relevance to the sustainability theme. The method was elaborated having agroindustry companies in a cooperative system, as case study. The proposed method is generic enough to be applied to other sectors that are interested in adopting the sustainability report model in the GRI criteria. The case study constitutes a guide for other companies in the process of selecting SIs.

Keywords: sustainability; sustainability indicators; global reporting initiative; GRI; Sustainable Development Goal; SGD; agro-industrial cooperative.

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1 Introduction

Agroindustries are responsible for the transformation of raw materials coming from the productive chain of agriculture or livestock, occupying a prominent place among the production industries. Brazil is the second largest food producer in the world (FAO et al., 2021), and is expanding its agricultural frontier. According to Matzembacher and Hourneaux (2019), sustainability is at an emerging stage of consolidation in Brazil, presenting some advances. The production sector in Brazil has been increasingly concerned with minimising and measuring the impacts generated by their activities, thus, adopting management systems aimed at reducing and/or mitigating the environmental impacts of agroindustry is necessary (FAO et al., 2021).

A sector of agribusiness deserving special attention is the cooperatives, as they are responsible for approximately 50% of the GDP linked to food in Brazil, in the world 1.2 million cooperatives are linked to the agribusiness and the cooperatives provide 11.1 million opportunities for work.

However, current themes such as accelerated climate change, accelerating, the resource limit, and the economic instability faced in the world, finding indicators of progress towards sustainability has proved to be urgent (Dahl, 2012; Kendall and Spang, 2020), and the global sustainability challenges have taken on a new dimension generating concern (Abam et al., 2018). In this scenario, promoting environmental management and sustainable development has put pressure on the demand for the adoption of adequate

methods to protect the environment of all industries (Tam and Tam, 2006; Contacts, 2020).

One of the ways to quantify and qualify the sustainability of a company is through sustainability reports, which present information such as sustainability indicators (SI), parameters that allow measuring the performance of the organisation on a given occasion. These SIs allow the analysis of trends and cause-and-effect relationships (Veleva et al., 2001; Wannags and Gold, 2020).

According to the Global Reporting Initiative (GRI, 2016), a sustainability report disseminates information about the impacts of an organisation on the environment, society, and the economy. It can also help in setting goals and monitoring sustainable performance. Reports prepared in the models of GRI guidelines are being adopted by an increasing number of companies based on their indicators address aspects relevant to the company and its stakeholders (Tarquinio et al., 2018).

The guidelines proposed by the GRI are an international reference for organisations interested in the dissemination of information about their management, their environmental, social, and economic performance, and the respective impact in these areas (Silva, 2015). However, the GRI SIs is generic, and organisations must prioritise which of them are most significant and impact for assessing their performance (Diaz-Sarachaga, 2021; Roca and Searcy, 2012).

A robust performance indicator system can assist decision-makers in overcoming corporate sustainability challenges. This system can help the companies understand the current situation of the company and its desired final state (Nappi and Rozenfeld, 2015). According to Valente et al. (2018), the lack of a consolidated model for the analysis of SIs, and the lack of a method for choosing indicators are factors that make it difficult to monitor and compare industries.

Therefore, this work aims to propose a method for the selection of SIs for agro-industrial cooperatives based on the guidelines provided by the GRI adopting the Standards model to answer the question 'Which indicators are more appropriate in a sustainability report for an agro-industrial cooperative?'.

The present work is justified by the importance of providing information to access and compare data for decision-making by different stakeholders of the company. The adhesion of sustainability reports by large companies worldwide has brought new perspectives to those that make public information, such as, management model for environmental, economic, and social performance. This fact indicates the concern of the organisation in carrying out its activities in a conscious manner, assuring the sustainable development.

This paper is structured in five sections, in addition to this introductory one. Section 2 presents the literature review, Section 3 describes the research method, Section 4 presents the development, Section 5 brings the results and discussions, and finally, the last section presents the conclusions.

2 Background theory

2.1 Discussions and proposals for sustainability

Governments are increasingly promoting sustainable choices and actions in their activities due to the common sense that resources are finite. Therefore, it can become

scarce when mismanaged (Abrahamsen et al., 2018). As a result, the number of corporations sharing details about their sustainability initiatives in publicly available reports has grown rapidly (Roca and Searcy, 2012).

The basic idea behind the concept of developing sustainability has existed for centuries (Steurer et al., 2005), and based on international trends in the 1970s, the term sustainable development has appeared in several UN-related activities since the early 1980s (Kuribayashi et al., 2018). However, despite the wide acceptance of sustainable discourse, its popularisation has not yet reached satisfactory implantation (Wass et al., 2014) in the face of its contradictions, difficulties in standardisation and understanding, which harms the achievement of better results (Martins and Candido, 2012).

In 2000, the United Nations (UN) established goals for sustainable development, which were the millennium development goals (MDGs). Fifteen years later, the Sustainable Development Goals (SDGs) replaced MDGs. The SDGs have 17 SDGs and 169 indicator goals that aim to achieve the 2030 Agenda. Unlike their precursors, the SDGs apply to all countries, regardless of their level of development (Mann et al., 2018).

While the MDGs were created for specialists and focused on developing countries, the SDGs are formulated for the world and encourage the participation of all countries (Kuribayashi et al., 2018).

However, the social responsibility of organisations and the sustainability are confused in their constructs, leaving a gap to be explored in the relationship between company and society. By sharpening the distinction between social responsibility and sustainability (which already include the social responsibility), we are calling for more research to deepen the research areas unique to each of these two fields of study and to explore their complementarities and intersections (Bansal and Song, 2017).

In summary, there are countless actions, tools, and concepts available to assist in achieving and measuring sustainable development, both for society and for the organisations within it. When using these tools as complement to one another, their contribution can lead to better results.

2.2 Sustainability indicators

SIs have been created as tools of action and control both for internal and external issues, aiming to meet the new demands of economic, social, and environmental (Ordónez et al., 2018). The literature on corporate sustainability reporting is vast. There is no universally accepted definition of a corporate sustainability report, but several definitions are available in the published literature, The GRI is the most widely known set of voluntary guidelines for corporate sustainability reporting. The aim of the GRI is to mainstream disclosure on environmental, social and governance performance (Roca and Searcy, 2012). Many companies have been concerned with their sustainable performance, some of which use SI that allows them to evaluate its performance concerning sustainability (Clarke-Sather et al., 2011; Kalmykova et al., 2018).

SIs have emerged as a widely accepted tool at all levels, national, community, organisation and company (Veleva et al., 2003; Tseng et al., 2019), they are necessary to make complex information in a format usable for public policies, in addition to assisting progress towards the organisation's goals and assist in management decision-making (Shields et al., 2012; Hanai and Espíndola, 2011; Diaz-Sarachaga, 2021).

Although there is no universally accepted methodology for organisations, sustainable development is often described within the concept of the triple bottom line (TBL), which is divided into three aspects of indicators: people (social), planet (environmental) and (economic) profits (Escribano et al., 2018; Haq and Boz, 2018). Even though, the term 'TBL' has been coined as a challenge for business leaders to rethink capitalism about 25 years ago, there is a demand for complementary studies to this one, which is a gap that this study intends to help fill (Elkington, 2018).

According to Bartelmus (2010), economic sustainability is directly linked to the company's profitability. Al-Sharrah et al. (2010) adds that the SI in the economic sphere describes the creation of wealth or value, both from financial and human capital.

Environmental indicators can measure the damage caused to the environment and establish relationships between activities and the environmental damage to establish possible actions that can, within a plan, reduce the negative impacts that have been identified (Milazzo and Spina, 2015).

According to Klumpp (2018), when it comes to discussions about SI, the social dimension is linked to the corporate role of the employer, and the organisation provides participation and status to those involved in the process. Questions of how to measure the quality of life and how some factors influence its quality have always been what guided the construction of social SI (Carrera and Mack, 2010). In general, the social dimension is related to capital, inclusion, exclusion, and social cohesion in economies (Chatzinikolaou et al., 2013).

The systematic choice of indicators used by companies in the same segment can be a reference for choosing and directing actions aimed at adopting a set of indicators belonging to a sustainability report (Roca and Searcy, 2012).

2.3 Global reporting initiative

One of the most effective ways for organisations to report their sustainable performance is using SIs (Tarquinio et al., 2018) through a report that acts as a channel to meet the expectations of all stakeholders (Orazalin and Mahmood, 2018).

The sustainability report has the function of building strong bonds with customers and society, making public the organisation's responsibility and concern for life on the planet and the people who inhabit it (Oliveira et al., 2014). According to Islam and Chow (2016), the report can also help organisations to set goals and manage changes more effectively by understanding and communicating their economic, environmental, and social performance, and demonstrating the link between their strategy and their commitment to a sustainable global economy.

The GRI is the most widely known set of guidelines for corporate sustainability reporting (Roca and Searcy, 2012; Huerta-Riveros and Gaete-Feres, 2017). It is also a major influencer in reporting that covers the three aspects of sustainability (environmental, economic, and social) (Masud et al., 2018).

The GRI was born in 1997, based in Amsterdam, to develop and provide guidelines for the process of preparing the sustainability report for organisations regardless of their size, sector, and location (Baldissera and Mourão, 2015). In short, the GRI guidelines specify the necessary content, stipulate the principles for standard disclosure, and require aspects such as clarity, balance, and accuracy of data to ensure the quality of this report (Barkemeyer et al., 2015).

The latest version of the GRI report model that comes to replace the previous GRI G4 version is known as GRI Standards. This version presents its content in a new format divided into two groups of documents: universal standards and specific standards. Table 1 presents an overview of the GRI standards model.

Table 1 Overview of GRI standards

	Module	*Contents*	*Approach*
Universal standards	GRI 101	Foundation	Starting point for using the GRI standards
	GRI 102	General disclosures	Reports contextual information about an organisation
	GRI 103	Management approach	Reports the management approach for each of the material topic
Topic-specific standards	GRI 200	Economic	Reports specific disclosures on the economic topic
	GRI 300	Environmental	Reports specific disclosures on the environmental topic
	GRI 400	Social	Reports specific social topic disclosures

Source: Adapted from GRI Standards (2016)

In general, the GRI standards model is divided into four series, the first being the 'Series 100', composed of the contents of GRI 101, GRI 102, and GRI 103, which present, respectively, the general principles for defining quality and report content, general company information and the company's approach to management. The 200, 300, and 400 series show the company's specific reporting topics regarding economic, environmental, and social impacts, respectively.

The expectation behind the GRI reporting model is that organisations are transparent and accountable about their sustainable performance and that their stakeholders can use the information present in the company's sustainability report in decision-making (Barkemeyer et al., 2015).

3 Research method

This study aims to contribute to the state of the art on SIs, specifically defined in the GRI model, as this is a topic that needs further studies (Kumar, 2011). In this work, three steps were carried out, in a sequence of activities illustrated in Figure 1.

The first stage, the study of GRI Standards included the following activities:

1 The complete reading of the whole set of GRI sustainability reporting standards, the understanding of the proposed GRI standards report model.

2 Analysis of which topic-specific standards are essential for an agro-industrial cooperative.

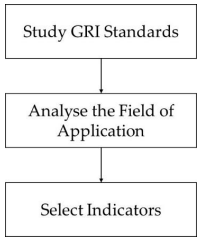
In the second stage, the field of application was analysed, which was carried out simultaneously with the first stage, and some activities were developed:

1 Choose companies by large Brazilian agricultural companies, who submitted GRI 4 or GRI Standards models.

2 Identify in the companies which indicators are reported in their reports.

The research was made in the platform available by the GRI, using Brazil as a research filter, the agriculture sector, and the most recent report models available: GRI 4 and GRI standards for better search results.

Figure 1 Sequence of activities adopted



Source: Authors

In the third stage, the indicators were selected and were classified into categories based on criteria. These criteria guide the researcher in choosing what best represent the topic studied when comparing different methodologies. Cotrim et al. (2017) used some criteria to compare cleaner production methods, and build a more adequate method to apply in small and medium companies. Therefore, the indicators were selected and classified into categories using the criteria presented in Cotrim et al. (2017) as a base for this study.

According to the report's guidelines, the criteria of selection used were:

1 Frequency of appearance: the indicators that appeared most frequently were included.

2 SDG approach: the indicators directly related to SDGs were included.

3 Applicability: indicators applicable in agro-industrial cooperatives were included.

The criteria were applied as scores and classifiers and were considered of equal importance and weight in the classification of indicators, the criteria used are relevant to the objectives established in the work. Therefore, the proposed method is composed of three stages, in which the last one is used of three criteria for the selection of indicators.

4 Results

4.1 Field analysis

The first activity of this stage of the research is step two of the proposed method, that is, to find out which agro-industrial cooperatives or companies in the agricultural sector use the GRI sustainability reporting model to report their results.

To carry out this step, the reports submitted by large Brazilian agricultural companies, defined in the GRI 4 or GRI standards models, were defined as the research boundaries, these being the most recent available. It was also defined that, for companies with more than one report available, only the last published report would be analysed.

Seven companies that met the research criteria were returned: Biosev, São Martinho, Cargil, Raisen, Agropalma, Copersucar, and Kleper Weber. Of these, only one is an

agro-industrial cooperative, and the other companies fall into the agricultural sector, however, they do not operate in the cooperative model. From this search, it can be noted that the adhesion of the GRI sustainability report model is still low among companies of this field, and among the reports found, all adhered to the model proposed by the GRI G4, a previous version to the GRI Standards officially launched in October 2016.

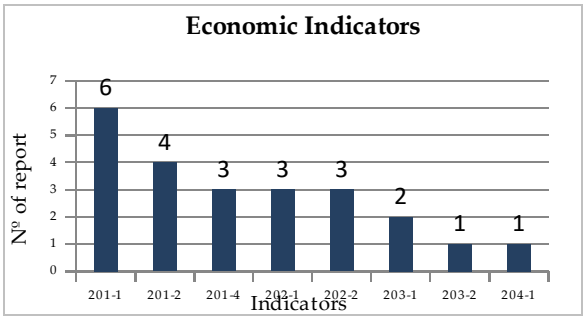
After the search was carried out, all the selected reports were identified and the economic, environmental, and social SIs found in the reports were fully read.

4.2 Selection of indicators

As explained in the research method, for the selection of the indicators three criteria were used: frequency of appearance, approach to sustainable development and applicability.

For the criterion frequency of appearance, the indicators were analysed using the number of their appearance in the reports. Figures 2, 3, and 4 show the results of this criterion.

Figure 2 Frequency of appearance of economic indicators (see online version for colours)



Source: Authors

As shown in Figure 2, from the eight economic indicators analysed, two of them were highlighted in terms of the number of appearances. They were the economic performance indicator 'direct economic value generated or distributed' (201-1) that appeared in six reports and the indicator of indirect economic impacts 'significant indirect economic impacts, including the extent of impacts' with four appearances (201-2).

The indicators 'financial implications and other risks and opportunities for the Organisation's activities due to climate change' (201-4), 'variation in the proportion of the lowest salary, broken down by gender, compared to the local minimum salary in important operating units' (202-1) and 'development and impact of investments in infrastructure and services offered' (202-2) appeared in three reports and the other indicators appear twice or only once.

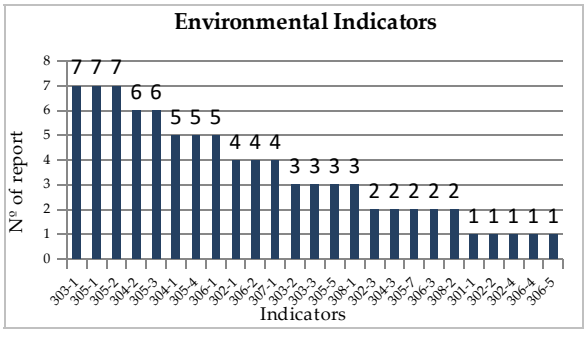
Figure 3 shows the frequency of appearance of environmental indicators.

Of the indicators analysed, three of them appeared in all reports, they are: 'total water withdrawal by source' (303-1), 'Direct emissions of greenhouse gases (GHG) (scope 1)' (305-1) and 'indirect greenhouse gas (GHG) emissions (scope 2)' (305-2), the latter two being included in the emissions section and the first in the water section. Of the remaining indicators, 40% appeared in two or less reports.

Finally, Figure 4 shows the frequency of the appearance of social indicators.

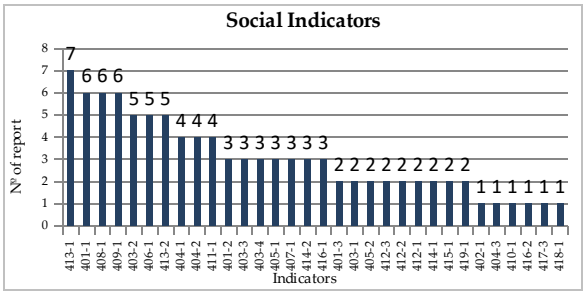
Of the social indicators present in the selected reports, only one was found in all reports, this is the indicator 'percentage of operations with implemented programs for the engagement of the local community, impact assessment and local development' (413-1) present in the local communities' topic-specific standard. With the second highest frequency were the indicators 401-1, 408-1 and 409-1 present, respectively in the aspects employment, child labour and compulsory and forced labour.

Figure 3 Frequency of appearance of environmental indicators (see online version for colours)



Source: Authors

Figure 4 Frequency of appearance of social indicators (see online version for colours)



Source: Authors

After the analysis of the first selection criterion was concluded, the second analysis was carried out, which concerned the approach to the SDGs. This analysis sought to identify which or which SDGs the indicator analysed was directly related to the GRI indicators, that is, when monitoring the indicator which SDG was being reached.

Tables 2, 3 and 4 list the economic, environmental, and social indicators, respectively, with the 17 SDGs proposed by the UN in 2015. The matrices present the relationship between the GRI indicators and the SDGs indicators, to reinforce the correlation between them. The 'x' mark indicates where there are similarities between the GRIs and SDGs indicators.

As shown in Table 2, the indicators addressing a greater number of SDGs are indicators 202-1, 202-2 and 204-1. The first is the indicator 'variation in the proportion of the lowest salary, broken down by gender, compared to the local minimum wage in important operating units', which addresses the SDGs for gender equality and reduction of inequalities.

Table 2 Approach to sustainable development of economic indicators

Economic indicator	Sustainable development goals																	
	No poverty	*Zero hunger*	*Good health and well-being*	*Quality education*	*Gender equality*	*Clean water and sanitation*	*Affordable and clean energy*	*Decent work and economic growth*	*Industry, innovation and infrastructure*	*Reduced inequalities*	*Sustainable cities and communities*	*Responsible consumption and production*	*Climate action*	*Life below water*	*Life on land*	*Peace, justice, and strong institutions*	*Partnerships for the goals*	*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	
201-1								x										1
201-2																		0
201-4																		0
202-1					x			x		x								3
202-2																		0
203-1									x									1
203-2								x										1
204-1																		0

Source: Authors

Table 3 Approach to sustainable development of environmental indicators

Environmental indicator	Sustainable development goals																	Total
	No poverty	Zero hunger	Good health and well-being	Quality education	Gender equality	Clean water and sanitation	Affordable and clean energy	Decent work and economic growth	Industry, innovation and infrastructure	Reduced inequalities	Sustainable cities and communities	Responsible consumption and production	Climate action	Life below water	Life on land	Peace, justice, and strong institutions	Partnerships for the goals	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
301-1											x	x	x					3
302-1							x				x	x	x					4
302-2							x				x	x	x					4
302-3							x				x	x	x					4
302-4							x				x	x	x					4
303-1						x					x	x		x				4
303-2						x					x	x		x				4
303-3						x					x	x		x				4
304-1															x			1
304-2											x	x	x		x			4
304-3											x	x	x		x			4
305-1											x	x	x					3
305-2											x	x	x					3
305-3											x	x	x					3
305-4											x	x	x					3
305-5											x	x	x					3
305-7											x	x	x					3
306-1						x					x	x		x				4
306-2											x	x		x	x			4
306-3						x					x	x		x				4
306-4												x						1
306-5						x					x	x	x	x	x			6
307-1												x						1
308-1											x	x					x	3
308-2											x	x	x				x	4

Source: Authors

Table 4 Approach to sustainable development of social indicators

Social indicator	Sustainable development goals																	
	No poverty	*Zero hunger*	*Good health and well-being*	*Quality education*	*Gender equality*	*Clean water and sanitation*	*Affordable and clean energy*	*Decent work and economic growth*	*Industry, innovation and infrastructure*	*Reduced inequalities*	*Sustainable cities and communities*	*Responsible consumption and production*	*Climate action*	*Life below water*	*Life on land*	*Peace, justice, and strong institutions*	*Partnerships for the goals*	*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	
401-1					x			x		x								3
401-2			x					x										2
401-3																		0
402-1																		0
403-1			x															1
403-2			x															1
403-3			x															1
403-4			x															1
404-1																		0
404-2								x								x		2
404-3																		0
405-1					x													1
405-2					x													1
406-1										x						x		2
407-1																		0
408-1								x								x		2
409-1								x								x		2
410-1																x		1
411-1																x		1
412-1																x		1
412-2								x								x		2
412-3								x								x		2
413-1								x		x							x	3
413-2											x	x						2
414-1																x	x	2
414-2																x		1
415-1																		0
416-1			x															1
416-2			x															1
417-3																x		1
418-1																x		1
419-1																x		1

Source: Authors

The second and third are related to the SDGs decent work and growth and reduction of inequalities and are respectively the indicators of 'proportion of senior management members hired in the local community in important operating units' and 'proportion of spending on local suppliers in important operating units'. Two of the economic indicators do not encompass any SDGs, these are the indicators 'financial implications and other risks and opportunities for the organisation's activities due to climate change' and 'financial assistance received from the government'. The other indicators presented one SDG approach, each.

Table 3 shows the SDGs approach by the analysed environmental indicators.

For the SDGs approach, by the environmental indicators analysed, indicators 304-2 and 306-5 were highlighted. The first is to indicate 'description of significant impacts of activities, products and services on biodiversity in protected areas and in areas of high biodiversity value outside protected areas', which addresses the SDGs sustainable cities and communities, consumption and responsible production, earth life and peace, justice, and effective institutions.

The second is the indicator 'identification, size, protection status and biodiversity value of water and related habitats significantly affected by discharges and water drainage carried out by the Organisation', which addresses the SDGs for sustainable cities and communities action against global climate change, life in water and earth life.

Of the environmental indicators, only one does not address any of the SDGs, this is indicator 301-1 'materials used, broken down by weight or volume'. Finally, Table 4 presents the SDGs approach by the analysed social indicators.

As shown in Table 4, indicator 413-1, which is the indicator 'percentage of operations with implemented local community engagement, impact assessment and local development programs' addresses three SDGs, they are: decent work and economic growth, reduction of inequalities and partnerships and means of implementation. Out of 32 social indicators, 12 address two SDGs, 15 address one SDG and 4 do not address any of the SDGs.

After the analysis of the SDG approach criteria was completed, the analysis of the applicability of the indicators in agro-industrial cooperatives began. From this analysis, only two indicators of the 65 indicators analysed were considered as not applied, they are the economic indicator 'financial assistance received from the government', and the social indicator 'total value of contributions to political and political parties, broken down by country and recipient/recipient'. Therefore, the remaining 63 indicators received a score of +1 for this criterion.

Once the application of the three defined criteria was completed, it was possible analyse which indicators achieved the highest score and were most used for the studied sector. To define the cut-off point for the selection of indicators, the average number of indicators for each aspect found in the analysed reports was considered.

After phase 2, the implementation process will be described, for which the target company of the case study will be presented.

4.2.1 Case study

The target company of the case study is in Brazil, having been founded in 1963, with the objective of helping producers to produce, receive and benefit from coffee. Over time, the cooperative diversified its businesses and grew. Today, it is present in several municipalities through more than 80 operational units spread across the north and

northwest of Paraná, western São Paulo and southwest of Mato Grosso do Sul. It has 15,000 associates that work with the production of soy, corn, wheat, coffee, and orange.

Company 'A' targeted by the case study has the following:

Mission Assist the cooperative member, ensuring the perpetuation of the cooperative in a sustainable way.

Eyesight Grow profitably.

Values Reliability, equity, ethics, people, quality, profitability, socio-environmental responsibility, security, and transparency.

Table 5 Company characterisation

Company characterisation	
Number of members	12.000
Main raw material	Industrialisation, processing, commercialisation of food, environmental solutions, pesticides, agricultural implements, seeds and animal feed.
Main quality programs	Lean Six Sigma projects
	Kaizen
Operational area	Mundial

Source: Authors

Table 6 Research protocol

Research elements	*Description*
Study question	Which indicators are more appropriate in a sustainability report for an agro-industrial cooperative?
Analysis unit	Analyse and select a set of indicators to be used by an agro-industrial cooperative.
Time limits	2019.
Local	Cooperative
Construct validity	Interviews, visits, direct observations and internal data.
Internal validity	Analysis of the use of GRI indicators by other companies.
External validity	Comparison between the literature and a case study.
Elementary issues in case studies	Select GRI indicators applied to an agribusiness.
	Describe which GRI indicators have been adopted by the industry.
	Check the suitability of the proposed methodology in a case study.

Source: Authors

After the characterisation of Company 'A', the application of the case study will be described. During the research for its consolidation, visible artefacts were collected from organisations such as photos, plans, layouts, organisation charts and phrases that may represent the phenomenon studied. The research follows the following protocol.

After the selection based on phase 3, an analysis was made of which indicators would be suitable for the agro-industrial company, this procedure will be detailed here.

For that, it was considered that the average obtained among the seven initial reports of this study, was four economic, 13 environmental and 14 social indicators. Therefore, having made the considerations made, and analysed the scores obtained in the three

strands, it was defined that the indicator must respect the criterion and if the average score was reached and if there were indicators with the same score, all would be selected.

As a result of the selection, five economic, 16 environmental and 21 social indicators were obtained, which are shown in Tables 7, 8, and 9, respectively.

Table 7 Selected economic indicators

	Economic indicators
201-1	Direct economic value generated and distributed
202-1	Ratios of standard entry level wage by gender compared to local minimum wage
203-1	Infrastructure investments and services supported
203-2	Significant indirect economic impacts
204-1	Proportion of spending on local suppliers

Source: Authors

Table 8 Selected environmental indicators

	Environmental indicators
302-1	Energy consumption within the organisation
303-1	Water withdrawal by source
303-2	Water sources significantly affected by withdrawal of water
303-3	Water recycled and reused
304-1	Operational sites owned, leased, managed in or adjacent to, protected areas and areas of high biodiversity value outside protected areas
304-2	Significant impacts of activities, products, and services on biodiversity
305-1	Direct (scope 1) GHG emissions
305-2	Energy indirect (scope 2) GHG emissions
305-3	Other indirect (scope 3) GHG emissions
305-4	GHG emissions intensity
306-1	Water discharge by quality and destination
306-2	Waste by type and disposal method
306-5	Water bodies affected by water discharges and/or runoff
307-1	Non-compliance with environmental laws and regulations
308-1	New suppliers that were screened using environmental criteria
308-2	Negative environmental impacts in the supply chain and actions taken

Source: Authors

Table 7 shows the five indicators selected from the eight analysed in the economic aspect. In this case, the highest scored is the indicator 'direct economic value generated and distributed', which represents an indicator of the organisation's economic performance. The second and third highest scoring indicators represent, respectively, indicators that depict results from the market presence and indirect economic impacts booklets and are indicators 202-1 and 203-2. From the 6 existing books of economic indicators, 4 were selected, they are: economic performance (201-1), market presence (202-1), indirect economic impacts (203-1 and 203-2) and purchasing practices (204-1). Table 8 shows the selected environmental indicators.

Table 9 Selected social indicators

	Social indicators
401-1	New employee hires and employee turnover
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees
401-3	Parental leave
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities
403-3	Workers with high incidence or high risk of diseases related to their occupation
403-4	Health and safety topics covered in formal agreements with trade unions
404-1	Average hours of training per year per employee
404-2	Programs for upgrading employee skills and transition assistance programs
405-1	Diversity of governance bodies and employees
405-2	Ratio of basic salary and remuneration of women to men
406-1	Incidents of discrimination and corrective actions taken
408-1	Operations and suppliers at significant risk for incidents of child labour
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labour
411-1	Incidents of violations involving rights of indigenous peoples
412-2	Employee training on human rights policies or procedures
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
413-1	Operations with local community engagement, impact assessments, and development programs
413-2	Operations with significant actual and potential negative impacts on local communities
414-1	New suppliers that were screened using social criteria
414-2	Negative social impacts in the supply chain and actions taken
416-1	Assessment of the health and safety impacts of product and service categories

Source: Authors

Table 8 shows the 16 indicators selected from the 25 analysed in the environmental aspect. In this respect, the indicator with the highest score was the indicator in the biodiversity section, 'description of significant impacts of activities, products and services on biodiversity in protected areas and in areas of high biodiversity index located outside protected areas'. From the eight existing topic-specific standards in the environmental aspect, seven were selected by the selected indicators, with the 'materials' topic-specific standard being the only one not represented. Finally, Table 9 shows the selected social indicators.

Table 9 shows the 21 indicators selected from the 32 analysed in the social aspect. The indicator with the highest score in this aspect was the indicator 'percentage of operations with implemented programs for the engagement of the local community, impact assessment and local development' in the local communities section. Then, with

the same score, indicators 401-1, 408-1 and 409-1 appeared, which address, respectively, the social indicators.

5 Discussion

Based on the proposed method, it was possible to select the most relevant SIs for an agro-industrial cooperative that wishes to report its results using the sustainability-reporting model proposed in the GRI guidelines, the standards model.

As a result, a total of 42 indicators were selected, distributed among the three aspects pointed out by the TBL (economic, environmental and social), which address 14 of the 17 SDGs proposed by the UN that aim to achieve the 2030 Agenda, which indicates the relevance of the indicators to the sustainability aspect in a global context.

Analysing the indicators as to the application in the proposed sector, it can be noted that, when the results are compared with the reports studied as support for the selection, the proposed number of indicators for each aspect is compatible with what is expected from a report by agro-industrial cooperatives.

While the average of indicators in the economic aspect of the reports studied is 4, the proposal has five indicators, in the environmental aspect the average is 13, the proposal indicates 15, and finally, the social aspect has an average of 14, while the proposal indicates 21 indicators. As regards the general average of indicators, the proposal presents 42 selected indicators, while the average of the analysed reports is 30 indicators, however, the individual results of the analysed reports present values closer to the proposed, such as Agropalma with 38 and Raizen with 35 indicators.

For the full implementation of the standards model sustainability report, the three steps of the proposed method can be complemented by the five stages proposed by the GRI are suggested as step-by-step, which are based on the PDCA cycle as follows:

- Plan: a phase that includes the entire preparation process for the implementation of the report, where a plan for implementation must be drawn up, the preparation team defined, and the 'kick-off' meeting scheduled.
- Do: phase in which interested parties must be contacted and heard to enable the organisation to understand their needs and interests.
- Check: phase in which efforts should be concentrated to define the topics to be reported, as well as which topic-specific standards and indicators will be addressed. At this stage, it is recommended to apply the methodology proposed in this study. And which the processes will be analysed and monitored to enable the monitoring of the report's indicators.
- Action: phase in which the report will be prepared, written, and published; the media are also defined here.

Following the recommended phases and using the proposed method to select the relevant indicators, it is possible to report the operational and sustainable performance of the organisation, covering the relevant aspects in the existing processes of an agro-industrial cooperative, using the GRI Standards report model.

6 Conclusions

This paper discussed some concepts of sustainability and their different approaches. It also demonstrated how to report the results of organisations to their stakeholders. Despite many existing initiatives and indicators on the subject, most existing companies still do not adopt a model for reporting their initiatives and their operational performance, a fact that can be attributed to the difficulty in selecting the relevant information and model to report.

Therefore, this study aimed to develop and apply a method that answers the question: 'What indicators are essential in a sustainability report of an agro-industrial cooperative?' The proposed method sought to select these existing indicators within the sustainable reporting model proposed by the GRI, using as a source the reports already published by companies in the sectors compatible with the study and criteria for selecting the indicators.

The main contribution of this paper is the systematisation of a method to select SIs aligned to the activities of agro-industrial cooperative. Another contribution is the method application in a real context. This example constitutes a guide for another's companies in the process of selecting SIs.

The method application in a real context results in the selection of 42 indicators that were obtained within the economic, environmental, and social aspects. These indicators were divided into five economic indicators, listed in Table 7. Selected economic indicators, where the indicated one can be cited: 201-1 'direct economic value generated and distributed' as an example; 16 environmental indicators, described in Table 8. Selected environmental indicators, where they can be found in the group of indicators such as: 302-1 'energy consumption within the organisation'; and finally, 21 social indicators contained in Table 9 – selected social indicators, where they can be found in the indicators group, such as the 401-1 indicator 'new employee hiring and employee turnover'. The selected indicators, in addition to reporting operational performance, also address the SDGs, showing their relevance to the sustainability theme.

The suggested indicators contribute to the elaboration of sustainability reports by agro-industrial cooperatives. However, the proposed method and the selection criteria used proved to be generic enough to be applied to other contexts and can be used as a guide for selecting indicators for all companies interested in reporting their results, regardless of their industry field or size. As future work, the proposed method should be applied to other sectors, to facilitate and make accessible the model of reporting results related to sustainability by more companies.

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