Original Article

Cooperative Competitiveness Index: a tool to assess the competitiveness of agro-industrial cooperatives

Índice de Competitividade Cooperativa: uma ferramenta para avaliar a competitividade das cooperativas agroindustriais

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ABSTRACT

Purpose/objective: To structure and describe a new tool for measuring the competitiveness of agro-industrial cooperatives.

Design/methodology/approach: A three-stage procedure was developed: the first step consisted of carrying out a diagnosis of agro-industrial cooperatives; in the second stage, 38 competitiveness sub-factors were identified, and these were grouped, according to common characteristics, under five drivers (cooperative management and governance, production, commercialization, transaction costs, and cooperating farmers); and third, qualitative criteria and tools were presented for the allocation of relative weights and scores, enabling the calculation, on a scale between 0 and 10, of the Cooperative Competitiveness Index (CCI).

Findings: It is possible to mention at least four highlights provided by this study: (1) identification of 38 competitiveness sub-factors for agro-industrial cooperatives; (2) calculation, on a scale between 0 and 10, of the Cooperative Competitiveness Index using five competitiveness drivers, with their respective relative weights and scores; (3) CCI can be a management tool for agro-industrial cooperatives; and (4) CCI is suitable for the empirical application, with easy adjustments and improvements.

Research limitations/implications: the lack of realization of the empirical test and calibration of the proposed model and the relative arbitrariness in determining the five drivers of competitiveness.

Originality/value: There is an expectation that the application of the tool presented here can contribute to identifying improvement points, which allow the strategic realignment of the cooperative ventures, improving their efficiency and, consequently, their competitiveness

Keywords: Competitiveness drivers; Sub-factors; Scores; Competitiveness index

RESUMO

Finalidade/objetivo: Estruturar e descrever uma nova ferramenta para medir a competitividade de cooperativas agroindustriais.

Desenho/metodologia/abordagem: Foi desenvolvido um procedimento em três etapas: a primeira consistiu na realização de um diagnóstico das cooperativas agroindustriais; na segunda fase, foram identificados 38 subfatores de competitividade, agrupados, de acordo com características comuns, em cinco direcionadores (gestão e governança cooperativa, produção, comercialização, custos de transação e quadro de cooperados); e terceiro, foram apresentados critérios qualitativos e ferramentas para atribuição de pesos e pontuações relativas, possibilitando o cálculo, numa escala entre 0 e 10, do Índice de Competitividade Cooperativa (ICC).

Constatações: (1) identificação de 38 subfatores de competitividade para cooperativas agroindustriais; (2) cálculo, em escala de 0 a 10, do Índice de Competitividade Cooperativa, utilizando cinco direcionadores de competitividade, com seus respectivos pesos e pontuações relativas; (3) o ICC pode ser uma ferramenta de gestão para cooperativas agroindustriais; e (4) o ICC é adequado para aplicação empírica, com fáceis ajustes e melhorias.

Limitações/implicações da pesquisa: a não realização do teste empírico e calibração do modelo proposto e a relativa arbitrariedade na determinação dos cinco direcionadores da competitividade.

Originalidade/valor: Existe a expectativa de que a aplicação da ferramenta aqui apresentada possa contribuir para identificar pontos de melhoria, que permitam o realinhamento estratégico dos empreendimentos cooperativos, melhorando sua eficiência e, consequentemente, sua competitividade.

Palavras-chave: Direcionadores de competitividade; Subfatores; Pontuações; Índice de competitividade

1 INTRODUCTION

Agro-industrial cooperatives have undergone profound changes in recent years. Much of these changes are due to the intensification of competition in increasingly globalised markets, characterised by decreasing return margins. Thus, to survive and thrive in this business environment, cooperative agro-industrial enterprises have adopted different governance models, patronage refund and control arrangements (Chaddad & Iliopoulos, 2013). Given this scenario, the emergence of models and studies, which can help measure and/or understand the effects of these transformations on the competitiveness of agro-industrial cooperatives, seems essential.

To illustrate the given scenario and consider the context in which this study is developed, take, as an example, the case of Brazil. Cooperative agro-industrial enterprises are significant in the Brazilian context since they account for almost

50% of the sector's total production (OCB, 2020). Likewise, in Brazil, cooperatives are associated with higher Human Development Indexes (HDI) in the municipalities where they operate (OCB, 2020). Also, benefits to agro-industrial cooperatives are attributed, such as increased producers' bargaining power, reduced fixed costs, diffusion of technologies, improvement of educational levels, technical and managerial assistance, and gains in income generation and distribution, among others (Souza et al., 2011).

It is worth mentioning that most of the Brazilian agro-industrial cooperatives operate in the commodities segment (OCB, 2020), which makes the competitive environment even more challenging. This phenomenon is due to the smaller space for product differentiation, combined with increasing pressure for gains in scale and efficiency. In this way, initiatives to measure the competitiveness of agro-industrial cooperatives become essential tools for the development of strategies and actions that can guarantee not only the individual development of firms but also of agro-industrial cooperatives (Machado Filho et al., 2004; Presno, 2013; Centenaro & Laimer, 2017; Konstantinidis et al., 2018; Ilha et al., 2018; Ajates, 2020; Oliveira Júnior & Wander, 2021). Knowing the competitive position of a cooperative can help identify points for improvement with a view to its proper positioning in the competitive environment.

Thus, this paper's main objective is to structure and describe a new tool for measuring the competitiveness of agro-industrial cooperatives. It is assumed that many studies fail to address cooperativism. Moreover, most failures are linked to methodologies and theoretical models identical to those applied in capital firms. In this context, we expect to contribute to the literature by presenting a methodology that considers the particularities related to cooperativism and agro-industrial cooperatives.

The methodology seeks to adapt to the particularities of agro-industrial cooperatives, also encompassing some bottlenecks identified in other previously proposed instruments, which will also be discussed. Secondary objectives include revisiting the concepts of competitiveness and systematising the existing empirical initiatives to analyse competitiveness in agribusiness and agro-industrial cooperatives.

Finally, we expect that the results achieved by this study go beyond the theoretical field, providing practical resources to the managers of agro-industrial cooperatives. There is an expectation that the application of the tool presented here can contribute to identifying improvement points, which allow the strategic realignment of the cooperative ventures, improving their efficiency and, consequently, their competitiveness.

2 METHODOLOGICAL PROCEDURES

To elaborate on this paper, three previous studies from the same research project were used: in the first one, the authors discuss concepts and particularities related to agribusiness cooperatives and cooperatives and describe their relevance based on the Brazilian Midwest region (Oliveira Júnior & Wander, 2020); the second study analysed the idea of agro-industrial cooperatives and the related management issues Oliveira Júnior & Wander, 2022); and the third study identified the main probable success factors affecting agribusiness cooperatives Oliveira Júnior & Wander, 2021).

Also, we carried out a comprehensive literature review, which sought to identify studies relevant nationally and internationally for competitiveness, agribusiness and agro-industrial cooperatives. As a research procedure, a meta-synthesis was used, a non-statistical technique whose purpose is to integrate, evaluate and interpret the findings of multiple qualitative studies (Cronin et al., 2008). It is possible to analyse and systematise critical elements common to several studies through meta-synthesis, producing new concepts and interpretations (Hungler et al., 1997). In this sense, Cronin et al. (2008) proposed a literature review model of five steps which was adapted for this study, as described in Table 1.

Table 1 – Literature review process (meta-synthesis)

Steps	Procedures
1) Research topic selection	The definition of the research theme sought to align with the previously described objectives of this study. There was a concern about adopting an approach broad enough to explain all the phenomena addressed in this paper. However, not too wide as to make the study unfeasible. Thus, "competitiveness in the scope of agribusiness" was adopted as the theme.
2) Literature search	We choose keywords to carry out the literature search, thus reaching the results of more specific questions in this research. Therefore, the following keywords were used: competitiveness in agribusiness, systemic competitiveness, cooperative competitiveness, instrument (or model) for measuring competitiveness in agribusiness and analysis of agro-industrial cooperative competitiveness and their Portuguese versions. Searches were conducted on the CAPES Journal Portal, Web of Science, Scopus and Scientific Electronic Library Online (SCIELO). The search tools have been configured so that at least one of the keywords should be included in the abstract or keywords of the papers. Likewise, it was decided to display the results in order of relevance according to the internal criteria of each platform.
3) Literature selection	The first procedure for selecting the literature was the exclusion of repeated results. Then the abstracts were read, answering simultaneously for each one of the three questions: Is there an alignment with the theme of the study being developed? Does it offer contributions to the achievement of the objectives? Does it have key elements in common with at least one other analysed bibliographic source? The references that received a "yes" for all three questions were included in our literature review.
4) Writing	In line with the propositions of Hungler et al. (1997), the discussions presented by this study sought the analysis and systematisation of critical elements with a view to the production of new concepts and interpretations. Therefore, according to three criteria, the text is organised in the following order: first theme, second method, and third chronology.
5) References	Bibliographic references were listed at the end of the text in alphabetical order using APA referencing style.

Source: Own elaboration based on Cronin et al. (2008)

We also included five book references to complement the selected bibliographies according to the procedures presented in Table 1 and for the best exposure to some theoretical questions. They are duly identified and listed in the references.

3 COMPETITIVENESS AND COOPERATIVES: THEORETICAL PERSPECTIVES

After the early 1990s, the pace and effects of the globalisation process intensified. As a result, national borders have narrowed, and regional trade blocs have emerged. As a result, the State's ability to intervene was reduced, and large global corporations found themselves in a position to take command over the determination, production and distribution of goods and services (Machado-da-Silva & Fonseca, 1996). In this context, considering their double nature (business and social), agro-industrial cooperatives faced the competitive dilemma of making decisions and implementing strategies that are as efficient from the economic point of view as they are effective from the social viewpoint, thus maintaining the conditions in the medium and long-term, to sustain its growth and competitive success (Machado Filho et al., 2004; Ilha et al., 2018).

It is known that the theoretical precepts that permeate competitiveness are not static. On the contrary, over time, they are subject to several changes, arising, among other factors, from the emergence of new competitive patterns and new configurations of the macroenvironment. Thus, countless theoretical aspects exist, whose approaches can be organisational, institutional, social, or economic, generating complexity in understanding organisational dynamics and decision-making (Ilha et al., 2018). Therefore, before pursuing the objective we proposed, it is important to discuss different points of view about competitiveness.

3.1 Competitiveness: Some concepts

The firms' ability to adapt to changes in the competitive environment is determined by their ability to organise production differently (Farina et al., 1997). Thus, the traditional view, derived from the theories of competition, where competitiveness is defined as the ability to survive and, preferably, prosper sustainably in current or future markets (Farina, 1999; Churchill & Peter, 1998), is not sufficient anymore to

explain, by itself, competitive phenomena. From then on, criticisms emerged of the firms' performance measurement model since such performance depends on systemic relationships, which are not always easily controllable.

Thus, new theoretical efforts were undertaken as alternatives to explain competitiveness more systemically and comprehensively. This is the case with the model of competitiveness in the form of competitive standards, according to which competitiveness would be the result of the interaction between the competitive forces present in each competition space, which would result in dominant forms of competition (Machado-da-Silva & Fonseca, 1996). From another point of view, the competition pattern would represent the rules of the competitive game (Farina, 1999). This way, competitiveness would be measured according to a firm's ability to adapt its strategies to the current competition pattern.

From institutionalism, firms perform their functions in an environment of rules, beliefs, and values, elaborated and consolidated through social interactions. In this context, competitiveness would be measured by the organisation's ability to meet collectively shared guidelines, whose constant support contributes to the strategies' success (Machado-da-Silva & Fonseca, 1996). On the other hand, in search of better conditions to compete, firms would seek to operate in more favourable and safe institutional environments, where the risks associated with their activity could be mitigated by guaranteeing property rights and establishing strategic, more reliable, and predictable relationships (Ilha et al., 2018).

Extending the concept of competitiveness systemically to interfirm interactions, using the bases of the New Institutional Economics and Transaction Costs Theory, it is possible to associate competitiveness with the capacity of firms to coordinate the transactions in which they are inserted (Farina, 1999). In other words, a firm would be more competitive and more capable of coordinating transactions by creating efficient and adequate governance structures. In the agro-industrial segment, cooperatives represent an essential route for the coordination of activities, considering that they

can bring together several links in the production process, intermediating transactions and contributing to the reduction of the costs involved (Bialoskorski Neto, 1999; Delarmelina & Sales, 2016; Iliopoulos et al., 2016). Consequently, agro-industrial cooperatives would be configured as agents to promote systemic competitiveness.

Competitiveness can also be defined as the company's ability to create and implement a competitive strategic framework, which makes it capable of maintaining or expanding, in the long term, a sustainable position in the market (Ferraz et al., 1996; Centenaro & Laimer, 2017). Thus, understanding the nature and scope of a firm's competitive capabilities becomes essential for it to be able to make decisions that can place it in a position of sustainable competitive advantage compared to other companies in the sector (Porter, 2005; Man et al., 2002; Churchill & Peter, 1998; Greenwald & Kahn, 2005; Centenaro & Laimer, 2017). Furthermore, in the case of the cooperative, given its dual nature (social and business), there is also a kind of internal competitiveness that drives the need to develop and implement strategies that can guarantee the interest and engagement of the members (Verhees et al., 2015). In other words, the cooperative competes with business competitors for market shares and the members' attention and dedication.

Therefore, competitiveness would be an end, a target to be pursued, and strategies, in turn, would represent how the company follows it (Oliveira, 2014). Therefore, it can be said that strategies are the paths that companies must take to reach planned future positions. In addition to strategic thinking, they involve the willingness and capacity for action (Herderson, 2002).

The competitive advantage in the literature in the 1960s is defined as the proactive and anticipated perception of market trends vis-à-vis competitors and the supply adjustment according to these (Ansoff, 1987). It is, however, a limited view of the market. To better understand the competitive advantage, it is necessary to know that it can be linked to a series of characteristics and competencies specific to each organisation, including managerial skills, specialisation, and differentiation (Roman et

al., 2012). Moreover, in the cooperative case, it can have competitive advantages that are not always the result of its administrative efficiency but, instead, of governmental protection, through specific legislation, for example (Ilha et al., 2016). Therefore, the mere possibility of extra advantages does not guarantee an excellent competitive position for cooperatives.

From a broader perspective, competitive advantage can be described as consistent performance characteristics that the company will have to increase its competitiveness (Silva et al., 2008). These characteristics, in turn, allow their association with competitiveness indicators, which can be applied to measure the performance of firms, as well as their comparison with competitors, thus establishing competitive standards (Van Duren et al., 1991; Oiagen et al., 2013; Ilha et al., 2018).

3.2 Competitiveness and Strategy

It can be said that a firm has a sustainable competitive advantage when it succeeds in implementing a value-creation strategy, which cannot be replicated by any other competitor, whether current or potential (Dierickx & Cool, 1989; Barney, 1991; Peteraf, 1993). Thus, the available resources are distributed among the companies in a heterogeneous and stable way over time. The sustainable competitive advantage is linked to each company's resources and combines them to produce unique strategies. The potential of each resource to generate sustainable competitive advantage is connected to four indicators: value, rarity, imitability, and substitutability (Barney, 1991). The cooperative staff represents, for the cooperative, an extra resource (which traditional firms do not have) whose level of participation and engagement can define the success or failure of its competitive strategy (Verhees et al., 2015).

The essence of strategy formulation can be defined as relating a firm to its environment, which is broad, comprising economic, natural, and social forces which influence companies (Porter, 2005). However, the most suitable environment for a firm is the industry (or industries) where it competes. The characteristics of the industry

influence the formation of the rules of the competitive game and the strategies available to companies (Farina et al., 1997; Churchill & Peter, 1998). Although forces outside the industry, in general, affect all competing firms, it can be said that their impact is relative since each firm has different skills and abilities to deal with them.

Competition in an industry is rooted in its fundamental economic structure, going far beyond the behaviour of current competitors. The competitive level results from the interaction of five fundamental competitive forces: the threat from new entrants, the rivalry between existing companies, bargaining power from suppliers, bargaining power from buyers and the threat from substitute products (Porter, 2005). The action of these forces conditions the potential for final profit in the industry, measured in terms of long-term return on invested capital. For cooperative ventures, considering that the associates are, at the same time, owners, suppliers and customers, the forces related to the negotiating power become somewhat more complex since, to position itself competitively, it is a wide range of internal and external interests must be reconciled.

The competitive strategy consists of defensive or offensive actions to establish a defensible position within a given industry (Ferraz et al., 1996; Porter, 2005; Centenaro & Laimer, 2017). The firm successfully combines conditions to face the five fundamental competitive forces through such positioning, thus obtaining greater investment returns. In addition, there would be three potentially effective generic competitive strategies to supplant competition in an industry: total cost leadership, differentiation, and focus (Porter, 2005).

The strategy is assumed to be only part of the process from a broad perspective. Thus, it is understood that there must also be a concern with implementing and controlling strategic procedures. Consequently, the concepts of administration and strategic management emerge, which presuppose the need for constant elaboration, execution, and revision of the business strategy, thus ensuring that the organisation formulates and maintains beneficial adaptations to its environment (Wright et al., 1998).

Regarding the strategy formulation process, two different aspects stand out: prescriptive approaches (Ansoff, 1987), in which the elaboration of the strategy takes place *ex-ante* its implementation, being based exclusively on environmental analysis and the establishment of quantifiable objectives pre-defined, thus having a clear separation between developers and executors (Indenburg, 1993); and descriptive approaches (Mintzberg, 1987), which admit the existence of the strategy in the form of mental models, which would result from the strategists' interpretation of reality, contextualised to the organisation's objectives. Descriptive models also include subjective criteria linked to intuition, experience, and judgment, with no clear separation between formulation and execution (Indenburg, 1993).

It is unlikely that a firm will survive, over time, adopting a single style or strategic approach. Organisations generally move through the various possible models in different phases, combining different approaches. Strategies change and evolve as the competitive environment develops and the needs of organisations change. Therefore, we can be inferr that the strategic model adopted by an organisation constitutes a response to specific requirements in force when it is formulated and implemented.

The cooperative's particularity is related mainly to the concern to simultaneously attend to the interests of multiple stakeholders, especially cooperative members and the market. Thus, the development of empirical initiatives to study competitiveness, even if designed for individualised analyses, cannot fail to consider systemic aspects inherent to agro-industrial cooperatives. Thus, we sought to align with such inference.

4 AGRIBUSINESS, COOPERATIVES, AND COMPETITIVENESS: SOME EMPIRICAL STUDIES

Efforts to develop instruments for measuring and comparing competitiveness in agribusiness are not recent. However, they became evident in the 1990s when competition in global markets intensified. From this point on, the existence of mechanisms that allow analysing the competitive performance of firms, production

chains, or even entire sectors has become fundamental for the identification of bottlenecks to be overcome, the direction of public policies, the development of competitive strategies and operational planning to gain joint efficiency (Van Duren et al., 1991; Silva & Batalha, 1999; Milaneze & Batalha, 2005).

Studies on the competitiveness of agro-industrial cooperatives have assumed a prominent role regarding concerns related to the development of local productive sectors (Souza et al., 2011; Ilha et al., 2018). Moreover, such studies can provide cooperative firms with tools to measure their efficiency and performance, relating them to close competitors and/or successful references, thus identifying benchmarks and points for improvement. Thus, in recent years, research of this nature has reached a relevant character for making decisions related to the future of cooperative enterprises.

4.1 Competitiveness in Agribusiness

Van Duren et al. (1991) contribution can be highlighted among the initiatives to measure or compare competitiveness in agribusiness. When investigating various segments of Canada's agri-food industry, the authors tried to develop a methodology for analysing competitiveness that considers the particularities inherent to agribusiness.

According to the proposed model, the competitiveness of both a production chain and a firm could be measured by two fundamental indicators: market share and profitability. In addition, there would also be a series of factors whose combined influence would result in the competitive condition in each analysed environment (Silva & Batalha, 1999). These factors would be allocated into four categories: controllable by the firm (strategy, products, technology, training, R&D, cost structure, etc.); controllable by the government (fiscal and monetary, R&D, labour, market structuring, educational, regulatory, etc. policies); quasi-controllable (input prices, demand conditions, international trade policy, etc.) and non-controllable (resources and natural and climatic factors) (Van Duren et al., 1991).

Thus, we can say that the proposal by Van Duren et al. (1991) is aligned with the systemic dimension of agribusiness, considering that both firms and governments can view the results of the analyses for the elaboration of strategies and actions, which can result in a joint gain of efficiency and competitiveness.

Silva and Batalha (1999), based on Van Duren et al. (1991) contribution, presented a methodological approach for analysing efficiency and competitiveness in agrifood chains. To study the case of the beef agro-industrial chain in Brazil, the authors first made a diagnosis about the conditions in force in each of the participating segments. Then, they established the main drivers of competitiveness, later decomposing them into sub-factors, which were adequately classified into the categories proposed by Van Duren et al. (1991).

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Finally, after analysing each of the established sub-factors, scale assessments were assigned, starting from "very unfavourable" to "very favourable" (with intermediate assessments: unfavourable, neutral, and favourable), also establishing the possibility of weight assignment by transforming the evaluations to a numerical scale (-2 to +2). The results demonstrate that it is a viable analytical tool which simplifies the understanding of the factors that affect the performance of the agro-industrial system and the planning of corrective measures when necessary (Silva & Batalha, 1999).

Oiagen et al. (2013) based themselves on Van Duren et al. (1991) and Silva and Batalha (1999) to measure the competitiveness of beef cattle production systems in the southern region of Brazil. The authors used the methodology for determining

competitiveness drivers and sub-factors to calculate the systems' competitiveness index (CI). The scores for each of the analysed subfactors were established through responses from respondents. The study concluded that the researched systems are competitive. However, they need improvements in some aspects. Finally, they state that such studies are of remarkable relevance so that public, private and development agents can plan and implement actions to improve the competitiveness of production chains.

Sarker and Ratnasena (2014) used time series covering 1961 to 2011 to measure the competitiveness of Canadian wheat, beef and pork agro-industrial complexes. For comparison, the authors chose competitors from the United States and determined the main drivers of competitiveness (production costs, foreign exchange, and government action) in each researched segment. Thus, they concluded that wheat production was competitive. However, cattle and pig farming could not stand up to the competition. Low levels of competitiveness have been attributed to high labour costs, unfavourable exchange rates and inefficient public policies.

Babili et al. (2016) used the Composite Competitiveness Index (CCI) concept to assess the competitive conditions of exports of tomatoes produced in Syria to Iraqi and Russian markets. First, the authors sought to identify the main demand indicators and the activity's challenges and difficulties. The results showed that Syrian tomato production is competitive, with public incentive policies being the main source of product competitiveness.

Through documental analyses and interviews with stakeholders, Conejero et al. (2017) carried out a study on the competitiveness of small castor bean producers in the Brazilian states of Bahia and Minas Gerais within the scope of the National Program for the Production and Use of Biodiesel (PNPB). The authors concluded that the level of competitiveness of these producers was low, pointing out, as the main cause, despite the existence of some cooperatives, the lack of conditions to conduct joint actions and exercise collective coordination.

4.2 Competitiveness and agro-industrial cooperatives

Russo et al. (2000) carried out a study with 500 Italian agribusiness cooperatives. The authors assessed the relationship between the power of managers and the level of indebtedness. The analysis of the results allowed us to conclude that the cooperatives whose managers had high levels of influence and power were in better debt conditions, were more profitable and had consistent long-term strategies, therefore, more competitive.

Machado Filho et al. (2004) analysed Brazilian agro-industrial cooperatives' competitiveness from the Agency Theory perspective. The authors concluded that the low levels of competitiveness presented were linked to deficiencies in management. The problems pointed out were mainly linked to governance issues arising from the complexity managers face when seeking to reconcile diverse and diffuse political and economic interests. Also, shared management tends to make the decision-making process time-consuming and make it more difficult for cooperatives to access sources of finance.

On the other hand, Peixe and Protil (2007) sought to develop an analysis tool for agro-industrial cooperatives that considered social and economic dimensions. To identify benchmarks and good practices to be known and copied by other organisations, a series of performance variables were established, divided into two broad groups: economic and financial efficiency and socio-political efficiency indicators. To do so, they took the case of a group of cooperatives from Paraná state (Brazil) as a base. The authors verified the existence of a strong correlation between the indicators present in the two groups. They concluded by recognising the importance of developing models of competitiveness analysis adapted to the singularities inherent to agro-industrial cooperatives.

Konstantinidis et al. (2008) used economic indicators to measure the competitiveness of 51 Greek wineries, of which 10 were cooperatives. The authors

concluded that the largest and most capital-intensive enterprises were profitable and competitive. In line with these authors, a study by Alho (2019) also linked the competitiveness of agro-industrial cooperatives to their capitalisation capacity. In this sense, the author argues that the cooperative members must receive adequate incentives to encourage them to increase their capital participation. Finally, it suggests that mechanisms based on the appropriation of residual rights, transferability of quotas and valuation of firms may be important alternatives.

The data envelopment analysis and discriminant analysis were used by Souza et al. (2011) to study agribusiness cooperatives' technical and scale efficiency in the Brazilian state of Paraná. By pointing out the main efficiency factors, the authors concluded that large cooperatives performed better than small ones, attributing the highest levels of competitiveness to better capitalisation practices.

Juliá-Igual et al. (2011) studied the case of seven competitive agro-industrial cooperatives based in the Netherlands, Ireland, and Denmark. The considered cooperatives operated in the dairy, meat, fruit, and vegetable sectors. The authors sought to identify the points in common through a qualitative approach between the ventures under focus, identified as sources of competitiveness. The results showed that all cooperatives participating in the research had the following characteristics: growth orientation, diversification, recognised brands, market orientation, reinvestment of surpluses and internationalisation.

Meanwhile, Wang et al. (2012) measured the operational efficiency of agro-industrial cooperatives based in Langao County (northeast China). The authors used data envelopment analysis to compare input and output indicators, thus establishing three possible levels of efficiency: strongly efficient, at the limit of inefficiency and inefficient. Again, pig farmers' cooperatives performed best.

Using a qualitative approach, Presno (2013) analysed the unique characteristics of Latin American agro-industrial cooperatives and their influence and participation in the competitiveness of agri-food systems. In addition, the author sought to assess

the potential of cooperation as a development strategy and the relationship between social management and competitiveness.

Adamišin and Kotulič (2013) conducted a study that compared agro-industrial cooperatives and traditional Slovak companies regarding economic efficiency. Therefore, the authors chose a series of numerically quantifiable economic and financial indicators as an analysis parameter. The conclusions indicated that, despite receiving government subsidies, agro-industrial cooperatives were less efficient and, consequently, less competitive than traditional companies operating in the same industry.

When analysing the value chain of Paraná's agribusiness cooperatives, Vesco et al. (2014) concluded that the cost structure was the main driver of decision-making within the scope of the researched enterprises. Thus, the firms' competitiveness level would be linked to the quality of the used cost management strategies.

Martinez-Carrasco Pleite & Eid (2015) extensively studied the competitive profile of agri-food cooperatives in Spain. To do so, they adopted quality and differentiation strategies as the main drivers of competitiveness. As a result, the authors concluded that despite significant heterogeneity, the researched enterprises are highly competitive and can adapt to scale, quality, and differentiation market demands.

Verhees et al. (2015) concluded that, for agro-industrial cooperatives, the primary and most important driver of competitiveness is the active participation of cooperative members. His study was conducted based on 241 interviews with cooperative specialists and members of cooperatives belonging to the German agri-food system. The results show that members' active participation is based on social attributes, such as cooperative culture, open communication, trust, commitment, and disposition. The authors also assert that these social attributes generate benefits, both for the cooperative and its members, and end up presenting suggestions to encourage the participation of the members.

On the other hand, Borgen and Aarset (2016) related the competitiveness of Norwegian agro-industrial cooperatives to their capacity for innovation, a phenomenon described by the authors as "participatory innovation". Thus, the greater the cooperative's capacity to generate and disseminate innovations, the more competitive it would be.

When carrying out a case study at *Cooperativa Agroindustrial Consolata - COPACOL*, Bortoluzzi et al. (2016) applied questionnaires to 91 management-level employees, with responses on a Likert-type scale. The study concluded that the good corporate governance practices adopted by that cooperative positively impact its competitiveness.

Camilleri and Izquierdo (2016) studied the competitiveness of citrus cooperatives in Spain. Forty-one firms were researched and divided into small, medium, and large groups. Market orientation, innovation capacity, and managers' training were listed as the main drivers of competitiveness. The study showed that small and medium-sized cooperatives considered themselves more innovative and market-oriented despite having less formally trained managers.

In another line, Tadesse et al. (2018) collected organisational and marketing data for 171 cooperatives of small rural producers in Ethiopia. The authors associated the ventures' performance with the type and variety of goods and/or services provided. Finally, they concluded that the participating cooperatives were not competitive and attributed the poor results to mistaken market positions. The firms would simply be entering markets where they had no competitive advantage. Thus, cooperatives with leaner portfolios would be more competitive.

Ilha et al. (2018) also used economic and financial indicators to measure the competitiveness of agro-industrial cooperatives in the West of the Brazilian state of Paraná. The method used to carry out the study was cluster analysis, or grouping, under a multivariate approach. Two companies (COAMO Agroindustrial Cooperative and Brasil Foods - BRF) were established as competitiveness standards; the results

were achieved to measure the distance between the performance of the analysed companies and that of the pre-established controls. As a result, it was concluded that the *Cooperativa Agroindustrial Consolata* (COPACOL) is an enterprise whose level of competitiveness is closer to standards.

Based on the cases of Spain and the United Kingdom, Ajates (2020) used a qualitative approach to analyse the impact of public policies, the lengthening of supply chains and the internationalisation of agri-food systems for the competitiveness of agro-industrial cooperatives. The author concluded that the studied firms are entering competitive standards like traditional companies. However, she warns that competitive pressures may be causing agro-industrial cooperatives to lose their identity, causing conflicts between local and global interests.

Given this scenario, we can observe that efforts to understand and measure the phenomena related to the competitiveness of agro-industrial cooperatives have multiplied in recent years. Nevertheless, we note that the existing methodologies seek to study the phenomenon under specific focuses: economic and financial indicators, management style, the participation of the cooperative members, capacity for innovation, or strategic positioning, for example. Therefore, we must emphasised that there is and probably will not be a perfect and universal instrument for measuring the competitiveness of agro-industrial cooperatives. However, the advent of a tool, which considers the particularities inherent to agro-industrial cooperatives, seeking to address the most significant possible number of factors related to their competitiveness, can provide substantial academic and practical contributions.

5 COMPETITIVENESS MEASUREMENT INSTRUMENT FOR AGRO-INDUSTRIAL COOPERATIVES

From this point on, we present a proposal for a model for measuring competitiveness for agro-industrial cooperatives. The methodology described is based primarily on Van Duren et al. (1991), Silva and Batalha (1999), Peixe and Protil

(2007) and Oiagen et al. (2013). With the necessary adaptations, the procedures described in the four contributions mentioned above can be used within the scope of agro-industrial cooperatives. It is noteworthy, however, that this paper constitutes a theoretical-methodological effort. The purpose, therefore, is to contribute, or starting point, for future studies, which will undoubtedly be developed due to the relevance of agro-industrial cooperatives.

Here, we proposed to develop the methodology in three stages, according to Silva and Batalha (1999). The first is the characterisation and diagnosis of the object to be analysed, particularly agro-industrial cooperatives. In the second stage, based on the information collected, it is possible to establish the main drivers of competitiveness, to which, in turn, subfactors are attributed. Finally, the third stage serves to qualitatively assess the impact and intensity of the competitiveness subfactors and their effect on the aggregated result of the drivers.

We expect that the successful completion of all stages will enable the calculation of an index capable of reflecting the competitive position of an agro-industrial cooperative. Therefore, we call it the Cooperative Competitiveness Index (CCI)[I]. We believe that the CCI can be used as a competitive qualification criterion for an agro-industrial cooperative in its field of activity. Also, we assum that the process results can support identifying points for improvement and planning and implementing competitive strategies.

5.1 Characterization and Diagnosis

Also, as in Silva and Batalha (1999), the characterisation and diagnosis of the object were partially based on studies before this that are part of the same project. These studies sought to detail essential aspects of cooperatives and agro-industrial cooperatives logically and linked. Thus, for a better understanding of the phenomena related to the research object, conditions were created to establish analytical criteria,

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[I] It is noteworthy that, despite sharing the same acronym, the Cooperative Competitiveness Index, conceptualized here, differs in the method of calculation and object of evaluation from the Composite Competitiveness Index, used in the study by Babili et al. (2016).

described from now on, and used in structuring the instrument for measuring competitiveness presented. Table 2 summarises the main contributions provided by studies before the design of this instrument.

Table 2 – Main contribution of previous studies to the proposed model.

Study	Coverage	Contribution
1 (Oliveira Júnior & Wander, 2020)	Cooperativism, Agro-industrial Cooperativism.	Appropriation of concepts and identification of particularities regarding cooperatives and agro-industrial cooperatives. Visualisation of the importance, representativeness and scope of agro-industrial cooperatives based on the case of the Brazilian Midwest region. Inferences about trends in agro-industrial cooperatives.
2 (Oliveira Júnior & Wander, 2022)	Cooperative, Agro-industrial cooperative, Cooperative management and governance.	Appropriation of concepts and identification of managerial specificities inherent to agro-industrial cooperatives. Identification of probable managerial pattern for agro-industrial cooperatives (New Generation Cooperatives). Description of management tools potentially applicable to agro-industrial cooperatives.
3 (Oliveira Júnior & Wander, 2021)	Cooperative, Agro-industrial cooperative, Cooperative management and governance, Competitiveness, Success factors.	Identification of 10 probable main success factors for agro-industrial cooperatives: reconciling the dual agenda: social and economic; management professionalisation; meeting the interests of multiple stakeholders; transaction cost management; risk and volatility management; commercialisation; competitiveness vis-à-vis traditional companies; adoption of technologies; sustainable development; and social responsibility.

Source: Own elaboration

Additionally, following the procedure of the meta-synthesis, we used a series of empirical studies related to competitiveness in agribusiness and agro-industrial cooperatives. These studies have already been briefly described. Their analysis aimed at obtaining complementary methodological parameters, combined with the contributions listed in Table 2, could provide subsidies for structuring the competitiveness measurement instrument.

In this way, we were able to diagnose the object (agro-industrial cooperatives) and to obtain a basic view of the stage in which empirical studies related to the competitiveness of agro-industrial cooperatives find themselves. Thus, by identifying key elements common between the three studies in Table 2 and the empirical studies that make up the theoretical framework of this work, we were able to gather sufficient analytical elements to develop the next steps of the model presented.

5.2 Establishment of Competitiveness Drivers and Subfactors

The key elements, verified during the meta-synthesis process, identified 38 competitiveness sub-factors (Table 3). In turn, the sub-factors were grouped for analytical convenience (Silva & Batalha, 1999; Oiagen et al., 2013) and, considering common characteristics, in five dimensions linked to the management of agro-industrial cooperatives, which assumed the condition of competitiveness drivers. The grouping facilitates the systematisation of the information collection necessary for the last stage and the distribution of relative weights, as will be described soon.

Thus, the following were defined as competitiveness drivers: cooperative management and governance (CMG), production (PR), commercialisation (CO), transaction costs (TC) and cooperative membership (CM) (Table 3). Thus, the second stage of the proposed model construction process was completed. We believe that such drivers can provide a broad view of the competitiveness of an agro-industrial cooperative, and these cover the main specificities of this type of firm, especially the need to obtain results in the economic and social fields (Peixe & Protil, 2007).

The established competitiveness drivers and sub-factors will serve to calculate the CCI. Considering the destination of the designed instrument, according to the classification prepared by Van Duren et al. (1991), all considered subfactors can be classified as controllable or almost controllable by the firm. It should be noted that the composition or location of the subfactors and drivers proposed here is not static and can be adapted in future studies to meet the particularities of the cases addressed or even the researchers' preferences.

5.3 Qualitative Evaluation of Competitiveness Drivers and Subfactors

The third stage consists of a qualitative assessment of the impact of the sub-factors on the composition of the CCI. Therefore, it was necessary to assign weights relative to the competitiveness drivers and the sub-factors of each driver. Thus, as explained, we gave weights according to inferences from the bibliographic studies.

In the case of drivers, considering that the final CCI values should vary between 0 and 10, the sum of the relative weights must be equal to 10 (Oiagen et al., 2013). Thus, we suggested to divide the values into the following proportion: cooperative management and governance: 2.5; cooperative membership: 2.5; transaction costs: 2.0; production: 1.5; and marketing: 1.5. The higher weights attributed to the GMG and CM drivers are justified by the fact that the two are those most linked to the dual nature of cooperatives (Peixe & Protil, 2007), exactly where they are most different from ordinary business firms and, simultaneously, where they have more significant difficulties in matching them. Furthermore, the intermediate value given to the director TC is related to the importance of agro-industrial cooperatives as agents that promote coordination within the scope of the production chains in which they are inserted (Bialoskorski Neto, 1999; Iliopoulos et al., 2016). Finally, the PR and CO drivers received the lowest values, given that they represent those in which cooperatives are closest to conventional companies.

As for the sub-factors, we followed the same logic for allocating relative weights; the more relevant the agro-industrial cooperative's differentiation compared to traditional firms and/or cooperatives from other branches, the higher the values attributed. The sum of the relative weights referring to the subfactors belonging to each driver must be equal to 1, thus reflecting their share of importance in calculating the total score (Oiagen et al., 2013). Table 3 represents the distribution of the identified competitiveness drivers and subfactors and the relative weights assigned.

Table 3 – Drivers, sub-factors of competitiveness and relative weights

(Continued)

Drivers	Weight	Sub-factors	Weight
Cooperative Management and Governance (Benato, 1992; Zylbersztajn, 1994; Bialoskorski Neto, 2004; Antonialli & Souki, 2005; Peixe & Protil, 2007; Souza et al., 2011; Oiagen et al., 2013; OCB, 2015; Ilha et al., 2018)	2.5	Professionalisation	0.1
		Transparency	0.1
		Self-management	0.1
		Compliance	0.1
		Strategic planning	0.1
		Training of managers	0.05
		Social responsibility	0.1
		Total asset turnover	0.1
		Return on equity (ROE)	0.1
		General indebtedness index	0.05
		Self-financing index	0.1
		Sum	1.0
Production (Hart & Milstein, 2004; Tilman et al., 2011; Leite et al., 2014; Martinez-Carrasco Pleite & Eid, 2015; Borgen & Aarset, 2016; Leite & Batalha, 2016)	1.5	Differentiation	0.1
		Innovation capacity	0.15
		Sustainability	0.15
		Adoption and diffusion of new technologies	0.15
		Technical and managerial assistance	0.2
		Quality strategies	0.1
		Productivity	0.15
		Sum	1.0
Commercialisation (Kontogeorgos, 2012; Pinto et al., 2012; Estevam et al., 2015)	1.5	Capacity to respond to demand	0.2
		Brand recognition and prestige	0.2
		Marketing channels	0.2
		Capacity to buy members' production	0.2
		Market share	0.2
		Sum	1.0
Transaction Costs (Zeuli, 1999; Moreira et al., 2012; Briggeman et al., 2013; Iliopoulos et al., 2016; Delarmelina & Sales, 2016)	2.0	Risk and volatility management	0.2
		Coordination capacity	0.2
		Logistics	0.1
		Legal advice	0.1
		Strategies for attracting and retaining members	0.2
		Production diversification	0.2
		Sum	1.0

Table 3 – Drivers, sub-factors of competitiveness and relative weights

(Conclusion)

Drivers	Weight	Sub-factors	Weight
Cooperative Membership (Peixe & Protil, 2007; Verhees et al., 2015)	2.5	Loyalty	0.1
		Leadership	0.1
		Communication channels	0.1
		Representativeness	0.1
		Average growth in the number of members	0.2
		Percentage of active members	0.1
		Turnover per member	0.1
		Investment in education	0.1
		Investment in services to members	0.1
		Sum	1.0

Source: Own elaboration

Once the relative weights are distributed, still in the third stage, the next step is assigning scores to each sub-factor. Therefore, a series of quantitative and qualitative resources can be used. In this study, we decided to focus on predominantly qualitative procedures.

Despite the methodological differences in the proposed model, it is noteworthy that the scores will always be valued on a scale varying between 0 and 10, with intermediate values of 2.5, 5.0 and 7.5 (Oiagen et al., 2013). This is because the evaluation should reflect the impact of the contribution of the analysed subfactor to the competitiveness of the cooperative in focus. At the researchers' discretion, it may later be framed on a Likert-type scale to facilitate the results interpretation.

Furthermore, using scales allows the numerical expression of the result of qualitative analyses. Silva and Batalha (1999) highlight that the scales are inappropriate for quantitative treatment. However, in Social Sciences, considering that ordinal measures represent approximations of equal measurement intervals is recurrent (Singleton et al., 1993 apud Silva & Batalha, 1999). Thus, starting from this premise, it is possible to treat the scales quantitatively (Silva & Batalha, 1999).

5.3.1 Scores Assignment

Here we present three possible methodological paths for the score assignment. The Delphi methodology is the first possibility (Silva & Batalha, 1999). As the authors proposed, it is possible to conduct joint evaluations involving the representation of researchers and various agents belonging to a given production chain. Initially, assigned scores were successively reviewed through rounds of discussion until a consensual position was reached for each sub-factor of all drivers of competitiveness.

After the qualitative assessment of the impact of the sub-factors, scores were assigned, on a Likert scale, ranging from very favourable (VF) to very unfavourable (VU), adopting, as intermediate terms, favourable (F), neutral (N) and unfavourable (U). The levels were then transformed into numerical values between -2 and +2. The procedure lets it view the results in graphical representations and make quantitative combinations to organise aggregate comparisons. This is a methodology developed initially to analyse the competitiveness of production chains. It would be necessary to make additional adaptations to use it in the instrument described now.

Also, this approach, although functional, is subject to some drawbacks and emphasis, in addition to the significant subjectivity, for a long time of application, the need for a close relationship with the audiences involved, obstacles related to the emergence of impasses and possible group interference with great political or administrative power. Thus, adding the need for adaptation and the bottlenecks presented, we believe that the Delphi methodology should not be considered the first option when empirically applying the instrument structured in this paper.

The second possible way of assigning scores is based on Oiagen et al. (2013). The methodology used structured questionnaires containing four objective questions for each evaluated sub-factor. The responses were of the binary type, represented by the alternatives: positive or negative. Thus, the greater the number of positive responses, the greater the degree of competitiveness of the subfactor. That is, four positive (100%) - VF; 3 positive (75%) - F; 2 positive (50%) - N; 1 positive (25%) - U; and

0 positive (0%) - VU. As in Silva and Batalha (1999), a procedure is developed for the competitive analysis of production chains. Therefore, additional adaptations are also necessary for empirical application in agro-industrial cooperatives.

As the subjectivity of the assessment significantly decreased, the procedure developed by Oiagen et al. (2013) represented an advance from Silva and Batalha (1999). Furthermore, it is a tool that can serve as a basis for identifying points for improvement and designing actions and strategies. However, an empirical exercise does not propose a comparison parameter or identify benchmarks. Furthermore, the absence of benchmarks constitutes an obstacle to evaluating numerically expressed sub-factors (such as turnover per member, for example), which are essential when the analysis is done at the firm level. Thus, despite the progress, it is also not recommended that the method by Oiagen et al. (2013) is considered an initial option for the empirical application of the new instrument.

Finally, there is a third possibility of procedure for score assignment, which has not yet been tested, being the original part of the new methodology we propose here. According to the latter method, it is necessary to identify a benchmark cooperative before making a scoring assignment. In this way, the competitive analysis of a firm begins with the choice of another, considered a reference in its segment of activity, whose purpose will be to serve as a standard of comparison in evaluating numerically expressed sub-factors. The benchmark must be a cooperative enterprise.

We chose the variables net equity and the number of members as benchmark criteria. These are easily obtainable data, as they appear in official documents released annually by agro-industrial cooperatives. Furthermore, the choice of these variables is consistent with the studies by Konstantinidis et al. (2008) and Souza et al. (2011). They concluded that, in the agro-industrial segment, the largest cooperatives tend to be the most competitive. Additionally, the evaluated cooperatives must undergo regular audits. Thus, the reliability of secondary data collected during the process can be improved.

The subfactors must be classified as numerically quantifiable (NQ) and purely qualitative (PQ) for analysis. The sub-factors of type NQ are evaluated by checking the distance between the benchmark and the numbers of the analysed cooperative, and the benchmark values are always allocated in a neutral position (score 5.0). In the case of PQ-type sub-factors, their evaluation depends on non-quantifiable variables. Thus, a questionnaire should be prepared to collect information, preferably as Oiagen et al. (2013) proposed. The questionnaires must be applied to key informants linked to the analysed cooperative.

Sub-factors can receive the following grades: 10.0 – VF (very favourable); 7.5 – F (favourable); 5.0 – N (neutral); 2.5 – U (unfavourable); and 0.0 – VU (very unfavourable). In the case of sub-factors of type NQ, the marks awarded should reflect the distance between the competitive position of the analysed cooperative and the competitor considered a market benchmark. As for the factors of a PQ nature, the scores determined as the methodology of Oiagen et al. (2013) is proportional to the number of positive responses each subfactor receives in the questionnaire.

So, we recommend this last approach. Insofar as it allows the consideration of numerically expressed sub-factors of competitiveness, it can provide a more comprehensive view of the competitive position of an agro-industrial cooperative. Furthermore, it has as main advantages: ease and agility in the collection of information, considering that a good part of them is available in public domain documents, and the complementary ones can be obtained through the application of questionnaires or interviews with key informants; the possibility of identifying points for improvement; providing support for the formulation of competitive strategies, and identification of the competitive positioning of an agro-industrial cooperative. Thus, we believe that this last route, as proposed, represents an advance in cooperative competitiveness analysis methodologies, especially since, from the beginning, it was designed for agro-industrial cooperatives, considering their particularities and challenges.

5.3.2 CCI calculation

Once the scoring procedure is finished, we are able to calculate the scores of the competitiveness drivers and, finally, the CCI. The suggested calculation formula is the same for the three scoring methodologies described. Thus, the scores of the competitiveness drivers are obtained through a weighted arithmetic average, according to equation 1:

$$SD_i = \sum_{j=1}^{n} \frac{SS_j}{WS_j} * WD_i \qquad (1)$$

where:

SD_i represents the final score of driver i;

SS_j is the score of sub-factor j;

WS_j is the weight of sub-factor j; and

WD_i is the relative weight of driver i.

Once the scores of the competitiveness drivers have been determined, the CCI can be calculated by using Equation 2:

$$CCI = SD_{GMG} + SD_{PR} + SD_{CO} + SD_{TC} + SD_{CM} \qquad (2)$$

where:

CCI is the numerical value of Cooperative Competitiveness Index;

SDG_{MG} is the final score of the cooperative management and governance driver;

SD_{PR} is the final score of the production driver;

SD_{CO} is the final score of the commercialization driver;

SD_{TC} is the final score of the transaction costs driver; and

SD_{CM} is the final score of the cooperative membership driver.

Finally, we recommend the following criterion for CCI classification, considering that it should reveal the competitive position of an agro-industrial cooperative (Table 4).

Table 4 – Classification of agro-industrial cooperatives according to the obtained Cooperative Competitiveness Index (CCI)

CCI level	Classification
CCI ≤ 2	Not competitive
2 < CCI ≤ 4	Slightly competitive
4 < CCI ≤ 6	Competitive at the local level
6 < CCI ≤ 8	Competitive at the national level
CCI > 8	Internationally competitive

Source: the authors (2024)

This was our proposed Cooperative Competitiveness Index (CCI) to assess the competitiveness of agro-industrial cooperative enterprises.

6 FINAL CONSIDERATIONS

When examining the literature, we are able to find indications that the competitiveness of agro-industrial cooperatives has gained academic relevance. Furthermore, given the growing participation of cooperatives in agribusiness, especially in Brazil, we believe that the theme tends to become more and more frequent in scientific studies. Thus, it is likely that the demand for research with theoretical and practical perspectives in line with the particularities of agro-industrial cooperatives will grow over time.

As its primary objective, this paper must structure and describe a new instrument for measuring competitiveness for agro-industrial cooperatives. Thus, we assume that it was possible to achieve the mentioned objective by synthesising key elements common among initial studies and a collection of empirical studies related to the competitiveness of agribusiness and agro-industrial cooperatives.

Thus, by adapting various methodologies, an attempt was made to structure an instrument for measuring competitiveness as closely as possible to the reality of agro-industrial cooperatives, thus being specific to this object. It should also be noted that the new instrument possibly, verifies the competitive position of a cooperative

agro-industrial enterprise. Furthermore, it can be a starting point for other studies, especially empirical ones. Finally, demonstrating the possibilities of academic and practical contributions, we believe this study constitutes a potential educational innovation.

Also, we believe that the CCI Model can be incorporated into the strategic management process of agro-industrial cooperatives in a way as commonplace as the SWOT analysis, providing subsidies for the planning and implementation of the competitive strategy. As well, CCI is assumed to be a versatile tool, so each cooperative can configure it according to its specific needs.

In summary, we can mention at least four highlights provided by this study: (1) identification of 38 competitiveness sub-factors for agro-industrial cooperatives; (2) calculation, on a scale between 0 and 10, of the Cooperative Competitiveness Index, using five competitiveness drivers, with their respective relative weights and scores; (3) CCI can be a management tool for agro-industrial cooperatives; and (4) CCI is suitable for the empirical application, with easy adjustments and improvements.

However, it is worth noting the existence of factors limiting this contribution. The following stand out as the lack of realisation of the empirical test and calibration of the proposed model and the relative arbitrariness in determining the five drivers of competitiveness. Thus, as a research agenda, a validation test of the instrument offered here will be carried out. Furthermore, applying the model in specific cases to increase its accuracy is also suggested.

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3. Development of theoretical propositions (theoretical work)	√	
4. Theoretical foundation / Literature review	√	√
5. Definition of methodological procedures	√	√
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