


RESEARCH ARTICLE

Corporate social responsibility reporting in the food industry—Comparison of co-operatives and investor-owned dairies

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Abstract

Corporate social responsibility (CSR) has become a central issue in the dairy industry. While it is well established that each company in a chain contributes to that chain's CSR, the role of co-operatives as a predominant organizational form has been understudied. Due to specific characteristics of co-operatives, one may hypothesize that these member-based dairies put a higher value on sustainability than investor-owned dairy firms. No previous study deals explicitly with the contents of CSR reports in the dairy industry, differentiating between co-operative and investor-owned dairies. We adapt an existing set of criteria to examine CSR reports from 13 German dairies and complete the picture by analyzing their websites. A comparison of formal, quality-related, and content-related criteria suggests that co-operative dairies report in a higher quality and more extensively about sustainability. The results provide first insights into organizational form-specific differences in sustainability reporting. Our findings highlight areas in which dairy companies can become more sustainable.

KEYWORDS

communication, co-operatives, corporate social responsibility, CSR reporting, dairy, sustainability

1 | INTRODUCTION

The food industry faces an increasing demand for sustainability (Hartmann, 2011; Heyder & Theuvsen, 2012; Maloni & Brown, 2006). This demand also affects the dairy industry, the European Union's second biggest agricultural sector (European Parliamentary Research Service, 2018), which is being called upon by consumers, food retailers, and policy makers to become more sustainable (European Commission, 2020; Hunecke et al., 2020). At the same time, the sector encounters cost pressure, consolidation, market saturation, and a low share of the consumer's food budget (Eurostat, 2020; Höhler & Kühn, 2019). A key factor in increasing sustainability under these

conditions is the interplay of various stakeholders in the chain (Fiore et al., 2020; Piao et al., 2021). Recent evidence recognizes the crucial role of buyer supplier relationships in improving sustainability (Kumar & Rahman, 2015). In the European dairy industry, a rough distinction can be made between two forms of organization: Co-operatives hold 55% of the market share, whereas the rest of the market is controlled by investor-owned dairies (European Parliamentary Research Service, 2018). Both forms differ in their buyer supplier relationships. Dairy co-operatives are jointly owned by dairy farmers, who deliver their milk to their co-operatives and also control them (Feng & Hendrikse, 2012). In contrast, in investor-owned dairies, the farmers take only the role of suppliers. A better understanding of

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differences in corporate social responsibility (CSR) between organizational forms (for the case of farm sustainability, see Candemir et al., 2021) is needed to meet the growing demand for sustainability and to best support dairy companies in their efforts toward more sustainability.

The increasing demand for sustainability is also reflected in stakeholders' expectations to report on sustainability activities (Herzig & Schaltegger, 2006; Pucheta-Martínez & Gallego-Álvarez, 2018). It has previously been observed that the amount and content of information disclosed depend on the industry, the size of the firm, and ownership and governance structures (Gamerschlag et al., 2011; Pucheta-Martínez & Gallego-Álvarez, 2018; Tibiletti et al., 2021). Stakeholder theory emphasizes the crucial role of stakeholder power and resource ownership in CSR disclosure (Prado-Lorenzo et al., 2009; Ullmann, 1985). However, most previous studies focus on sustainability communication of large, stock-listed companies (e.g., Al-Tuwajri et al., 2004; Gamerschlag et al., 2011; Pucheta-Martínez & Gallego-Álvarez, 2018). These studies have no specific focus on co-operatives as an alternative organizational form (Battaglia et al., 2015). Moreover, there are few studies for the food industry (Luhmann & Theuvsen, 2016). Some of them include sustainability reports from dairies, but do not analyze the dairy sector separately from other sectors and, thus, do not include sector-specific characteristics (e.g., Halbes et al., 2006; Rottwilm & Theuvsen, 2016). Sector-specific influencing factors are regarded as important determinants of sustainability reporting (Hahn & Kühnen, 2013). In the case of the dairy sector, they arise, for example, from intensive animal husbandry and the high water consumption in the production of milk (Von Keyserlingk et al., 2013). In this research, we aim to examine if and how co-operatives and investor-owned firms in the dairy sector differ in their CSR reporting.

In the following, we adapt an existing evaluation scheme to our topic and apply it to CSR reports from a sample of 13 German dairy firms. We evaluate the reports based on formal indicators, quality descriptive indicators, and included topics. With these three dimensions, we can obtain differentiated information about the type and extent of CSR communication. In addition, we draw on the websites for further information. In our analysis, we focus on environmental and social dimensions of CSR. The financial dimension is already covered by the financial reporting (see also Gamerschlag et al., 2011). Our study contributes to a better understanding of dairy companies' CSR disclosures. First, we offer initial insights into the role of different organizational forms, namely co-operatives and investor-owned dairies, in CSR disclosure. Second, we contribute to the measurement of CSR activities in the dairy industry by extending the set of measures by sector-specific characteristics, such as animal welfare.

The remainder of the paper is organized as follows. In the next section, we review the relevant literature on CSR reporting and ownership structure as well as CSR reporting in the dairy industry. Based on the existing literature, we conjecture about organization-form-specific differences in CSR reporting. This section is followed by an explanation of the method. Results are presented in the next chapter. Finally, conclusions and discussion follow.

2 | RELEVANT LITERATURE

2.1 | CSR reporting and ownership structure

CSR includes voluntary activities by companies toward their stakeholders that are oriented toward taking social responsibility (Van Marrewijk, 2003). Stakeholders are individuals or groups that are considered in firm decisions and influence firm actions or that are themselves influenced by firm activities. Examples of stakeholders include owners, employees, and actors in upstream and downstream stages of the value chain or society (Freeman et al., 2010). Firms disclose their CSR activities in the form of CSR reports,¹ which are based on the standards of the Global Reporting Initiative (GRI) (Hahn & Kühnen, 2013). Researchers evaluate CSR reporting frequently on the quantity of disclosed information and the covered topics. More recent approaches also account for the quality of the disclosed information by considering as well how is being reported (Michelon et al., 2015).

The literature discusses ownership dispersion as an important mechanism through which ownership structures influence CSR reporting. Ownership dispersion describes the concentration of ownership. It is assumed that a highly dispersed ownership leads to lower power of shareholders in imposing their will and controlling managers. As a result, managers are expected to provide more voluntary disclosure (Prado-Lorenzo et al., 2009; Pucheta-Martínez & Gallego-Álvarez, 2018). We assume that the concentration of shares is rather low in co-operatives as compared with investor-owned firms (Cornforth, 2004). Therefore, we assume that co-operatives provide more voluntary disclosure.

However, there are a number of differences to investor-owned firms, which could have an impact on CSR disclosure:

1. The shares of traditional co-operatives are not traded in markets. Hence, the actions of managers are less driven by the market than by the goal of serving the diverse interests of the members (Cornforth, 2004). These differences could be reflected in the "how" of reporting. Co-operatives may want to target members first and foremost with their report.
2. Co-operatives may not only maximize profits, but also consider the welfare of their members (Soboh et al., 2009). Their objectives could result in different content priorities for reporting compared with investor-owned firms.
3. Members are not only the suppliers of the co-operative, but they also own and control it. Valentinov (2004) describes co-operatives as social capital-based organizations that are built on norms, values, and trust. Social capital could manifest in a stronger implementation of those sustainability aspects that involve members.
4. Based on the co-operative principles, co-operatives are believed to be committed to the environment and the promotion of ethical business practices (Carrasco, 2007; Novkovic, 2008). This commitment could translate into greater implementation of those aspects of sustainability that involve the environment and ethical practices.

5. The unique member-oriented structure of co-operatives also leads to a number of incentive and decisions problems (Benos et al., 2016; Cook, 1995). As a result, especially co-operative dairies are attested a lack of strategic investments (Harte & O'Connell, 2007; Zieseniß, 2014). These problems could impede investment in sustainability and its communication.

Overall, there seems to be some evidence that co-operatives report more extensively on CSR than investor-owned firms do.

2.2 | CSR reporting in the dairy industry

In 2014, Rottwilm and Theuvsen (2016) investigated the internet-based sustainability reporting of 115 companies in the food industry using formal indicators, communicated subject areas, and quality-determining indicators.² Formal indicators include, for example, the scope of information, the publication of a sustainability strategy, and a sustainability report or the naming of contact persons. They categorized communicated topics based on the GRI and adapted the topics to the specifics of the food industry. The quality-determining indicators refer, for example, to the transparency, comprehensibility, and topicality of the information. While 65% of the companies investigated provide information on sustainability topics, only 20% publish a sustainability report. It is striking that dairy companies rarely (30% of the dairy companies surveyed) communicate a sustainability strategy. The content assessment shows that the disclosure of CSR in the food industry includes, in particular, ecological aspects and aspects of employee management. Critical issues such as animal welfare or food labeling are avoided. The assessment of the quality-determining indicators shows that most of the reports examined have been prepared in an understandable way. The authors see potential for improvement with regards to the balance of the reports, their comprehensiveness, and accuracy (Rottwilm & Theuvsen, 2016). Even though dairy co-operatives play a major role in many European dairy markets (Höhler & Kühn, 2014), none of the previous studies addresses their CSR.

3 | METHOD

3.1 | Data

Based on a list of 189 members of the German Dairy Industry Association (MIV, 2019), websites of dairies were systematically examined for the existence of CSR reports. Our analysis included only dairy companies publishing their CSR report online. One of the analyzed CSR reports had to be requested on the firm website. Where explicit reference was made to parts of the annual report on the topic of sustainability and no separate report was available, these parts of the annual report were evaluated in terms of their CSR-related content. To obtain as complete a picture as possible of the information available, we also considered the websites of these companies. Subpages

on the topic of sustainability were selected, and related pages ("More information") were considered. For better comparability, large international companies were excluded from the analysis. Due to the internationally served markets, the different locations in different countries, and the resulting varying requirements for CSR, the topics of the reporting are presented in a different framework than those of national dairy companies. A comparison between international and national companies could, therefore, lead to biased results (see also Ali et al., 2017). The coding was carried out by a research assistant and took place in July–August 2019 as well as in July 2021. The later date results from the additional consideration of the websites. However, these were coded in their August 2019 state. To ensure reliability, a second coder coded a random sample of 30% of the companies. An agreement of over 90% was achieved.

Applying the exclusion criteria, reports from 13 dairy companies were examined (see Table A1). They were evaluated based on formal aspects, the quality of reporting, and communicated topics based on the scheme of Rottwilm and Theuvsen (2016). The advantage of this scheme over other existing schemes (e.g., Michelin et al., 2015) is that it is already adapted to the agri-food context. CSR disclosures of

TABLE 1 Overview of investigated formal indicators

Formal indicators	Inquired contents
1. In what form is the CSR report disclosed?	Independent report Integrated report
2. Does the information provided differ between the website and the report?	Content website < Content report Content website = Content report Content website > Content report
3. Was the report prepared in accordance with the GRI guidelines?	Yes/No
4. Does the report cover all three dimensions of CSR?	Yes/No
5. Does the firm communicate a defined sustainability strategy?	Yes/No
6. Is the level of responsibility for sustainability in the firm specified?	Yes/No
7. Is a contact person for sustainability indicated?	Yes/No
8. Does the firm specify the use of additional reporting standards in addition to the GRI guidelines?	Yes/No If so, which ones?
9. Does the firm indicate other standards, certificates, and labels?	Yes/No
10. Has the firm received awards in the field of sustainability, CSR or similar?	Yes/No
11. Is there an external audit of the information and CSR reports?	Yes/No If so, by whom?

TABLE 2 Overview of investigated quality descriptive indicators

Indicators	Inquired contents	Evaluation	
External reporting	Individuals (experts), institutions, interviews, newspaper articles, press releases within the report	0	No external voices ^a
		1	One to two external voice(s)
		2	Three external voices
		3	Four external voices
		4	Five or more external voices
Accuracy and verifiability	Indication of key figures	0	No key figures, imprecise description of measures
		1	Key figures only in firm portrait
		2	Key figures for a subject area or exact description
		3	Indicators for more than one subject area and/or detailed description
		4	Key figures for all subject areas and/or detailed description
Quantifiability	Indication of objectives, target figures and degree of achievement	0	No indication of objectives
		1	Objectives only mentioned in the text
		2	Objectives presented in detail in the form of text
		3	Objectives in the form of text and/or key figures in target catalog, status of implementation indicated
		4	Objectives in the form of text and/or key figures in target catalog, objectives quantified, status of implementation indicated
Actuality	Information up-to-date?	0	No information younger than 2 years, individual activities described
	Continuous information?	1	Information from the previous year or older, individual activities, and processes presented
	Representation of a process or rather isolated information?	2	Current information is given, and individual activities and processes are presented
		3	Only current information, presentation of a process, continuous presentation of CSR activities
	Long-term orientation identifiable?	4	Current information and future planning, long-term process representation
Continuity	Continuous, regular reporting	0	No information on reporting period
		1	Indication of the reporting period
		2	Indication of the reporting period and reference to reports already published <u>or</u> planned
		3	Indication of the reporting period and reference to already published <u>and</u> planned reports
		4	Indication of the reporting period and reference to already published and planned reports, indication of the next publication period, regular reporting (e.g., annually)
Involvement of stakeholders	Stakeholders named/identified?	0	Stakeholders not named
	Significance of groups and interests explained?	1	Stakeholders named in a section, not addressed individually, and no interests addressed
	To what extent were they included in the communication?	2	Stakeholders identified individually, interests partially explained
		3	Interests of important stakeholder groups explained by way of example, measures for consideration described
		4	Requirements considered in each topic section, importance of individual groups and measures explained, description of the communication process

TABLE 2 (Continued)

Balance	Self-presentation only positive or also self-critical?	0	Purely positive self-presentation, no consideration of past or future
	Past and future considered?	1	Positive self-presentation, approaches for future changes recognizable
		2	Balanced self-portrayal, no justification or solution approaches, past not considered, rather short-term approaches
		3	Balanced self-portrayal, justifications and solutions considered
		4	Balanced, self-critical presentation with current solutions, justification of past errors
Materiality, relevance	Plausibility of the argumentation	0	Insignificant and irrelevant activities and topics, no connection to effects of the firm
	Relevance of the activities in connection with the effects of the firm	1	Connections identifiable, relevance of topics dealt with low, no argumentation
		2	Both relevant and irrelevant activities
		3	All activities addressed are relevant and directly related to impacts
		4	All activities addressed are relevant and directly related to impacts, plausible and comprehensible argumentation
Evaluation of external suppliers	Are external suppliers checked and evaluated for compliance with the rules? Is there a system for this?	0	Sustainability of trading partners not mentioned
		1	Sustainability of suppliers mentioned in one sentence
		2	Explanation of how these are considered
		3	Description of the consideration and verification of compliance with sustainability standards
		4	Comprehensive description of consideration and verification of compliance (test system)
Evaluation of milk producers	Are milk producers checked and evaluated for compliance with the rules? Is there a system for this?	0	Sustainability of milk producers not mentioned
		1	Sustainability of milk producers mentioned in one sentence
		2	Explanation of how these are considered
		3	Description of the consideration and verification of compliance with sustainability standards
		4	Comprehensive description of consideration and verification of compliance (test system)

^aScale has been adjusted to improve interpretability.

six co-operative and seven investor-owned dairy firms were examined.

3.2 | List of criteria

In the following, we describe the criteria catalog of Rottwilm and Theuvsen (2016) adapted to the specific requirements of our data set. The adaptations result from our focus on companies that publish a CSR report, as well as the industry and organizational forms.

Table 1 shows the formal indicators examined. Instead of assessing whether a report is available, as Rottwilm and Theuvsen (2016) did, we assessed whether it was an independent or an integrated report. While the 2016 study evaluates the amount of information, we compared the amount of information in the report with the website. The following

questions are yes/no questions and relate to the guidelines used, the CSR dimensions covered, and the responsibilities within the firm as well as certificates and awards. In line with the GRI indicators (GRI, 2016), the external audit indicator was included in the analysis. Indicators of the quality of the report were not included in this part of our study, as these are already covered in the following analysis of qualitative indicators (see the following). As we focused on the CSR reports, we did not investigate other reports by the firm, and violations of legal regulations were also not investigated.

Table 2 shows the quality descriptive indicators against which the reports were examined. The evaluation covered the indicators external reporting, accuracy and verifiability, quantifiability, actuality, continuity, involvement of stakeholders, balance, materiality and relevance, evaluation of external suppliers, as well as evaluation of milk producers. Quantifiability of the stated target figures and objectives was added as



an indicator. This change was made on the basis of the core contents of sustainability reporting recommended by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, and their presentation of objectives and measures contained with the aid of key figures (BMU, 2009). Furthermore, we divided the indicator “timeliness and continuity” into two separate categories. In contrast to other communication channels, CSR reports cannot be adapted on an ongoing basis, which is why the actuality of the information relates to the date

of publication and continuity is an important factor in communication. Instead of trading partners in general, the evaluations of suppliers and milk producers were considered. The milk producers, as members of the co-operatives and through the supply of the main raw material milk, play a special role in the group of suppliers, which is why an additional indicator was considered useful.

The third category of evaluation covered topics included in the report. A screening was carried out beforehand to determine which

Dimension	Category	Indicator		
Ecology		Materials		
		Energy		
		Water		
		Biodiversity		
		Landscape conservation		
		Emissions, waste, wastewater		
		Food waste		
		Products		
		Packaging		
		Transport and supply chains		
		Animal ethics		Animal welfare
				Housing conditions
				Documentation, inventory management
Prevention and treatment of diseases				
Cow herd performance				
Own standards				
Social	Product responsibility	Customer health		
		Food safety		
		Customer dialog		
		Product labeling		
		Marketing		
		Ingredients and nutritional claims		
		Traceability		
		Genetically modified organisms		
		Milk producer	Milk price	
			Fixed price model	
	Labor practices and decent work, human rights		Employment	
		Employee–employer relationship		
		Education and training		
		Occupational safety, health protection		
		Diversity and equal opportunities		
		Code of conduct		
		Fair trade		
	Society	Equal treatment		
		Impact on the community		
		Regional commitment		
		Fight against corruption		
		Data protection		
		Healthy and affordable food		

TABLE 3 Overview of included topics

key topics were set in the CSR reports and websites of the dairies and which current topics of social discourse affected the dairies. In the ecology category, the indicators services and use of biofuels were removed from the list of criteria due to a lack of focus in the reports in this area. On the basis of current discourses and stakeholder demands and the topics addressed in the reports, the indicators of food waste and landscape conservation were added. In animal-ethical aspects, the indicator of slaughter was excluded and replaced by the indicator of cow performance. The indicators—antibiotic and hormone treatment as well as breeding diversity—were adjusted to information on prevention and treatment of diseases. In the social dimension, the policy category was excluded, and within the category of labor practices, the aspects of child, forced, and compulsory labor and respect for indigenous rights were replaced by the indicator of the Code of Conduct. Although the dairies did not explicitly mention human rights and working conditions in their CSR reports, they have labels and certificates that include these aspects (e.g., RSPO, UTZ). Thus, these aspects are included in our results via the evaluation of the formal indicators.

The category society was extended by regional commitment and data protection. In addition, we supplemented the category of milk producers with the indicators milk price and fixed price model. These changes were based on the screening of the reports and their importance for the dairy industry. On the one hand, the level of milk prices influences the income and, thus, the continued existence of farms. On the other hand, it promotes farmers' satisfaction with the dairy. Farmers are either members of dairy co-operatives or contractual partners with investor-owned dairies. Long-term cooperation and/or membership in the co-operative, thus, also ensure the existence of the dairies, which is a partial aspect of sustainability. Due to the focus on the environmental and social dimension, we did not consider further economic dimensions. Comparability of financial indicators would be difficult due to the different forms of reporting, some of which primarily serve to disclose economic indicators of corporate performance.

Table 3 shows the included topics examined.

An evaluation scale was used to assess whether and how the topics were included. We adopted the scale with Points 1–4 from Rottwilm and Theuvsen (see Table 4).

TABLE 4 Evaluation scale for content indicators

Rating	Evaluation
0	No information, the respective subject area was not considered in the reporting
1	The respective subject area is briefly mentioned in the CSR report in the form of a note
2	For each topic area, the reporting firm also describes the measures taken to achieve the goal
3	The report describes in detail how measures are and were implemented
4	The firm presents in detail how measures are and have been implemented and mentions any problems to be considered and any problems that may arise or have arisen

4 | RESULTS

4.1 | Formal indicators

Of the companies considered, a large proportion disclosed the non-financial information as a separate report. It is striking that all three CSR reports integrated into the annual financial statements originated from co-operative dairies. Of the seven dairies that stated that they prepare their CSR reports on the basis of the GRI guidelines or are guided by them, only two are co-operatives. A further difference can be seen in the communication of a defined sustainability strategy, which included only two of the co-operative dairies. Six of the investor-owned companies stated their sustainability strategy. Co-operative and investor-owned firms indicated the fulfillment of requirements with the same number of certificates, standards, and labels in their reports and on websites. Co-operative dairies disclosed an average of 10 and investor-owned dairies 9.7 third-party awards.

4.2 | Quality descriptive indicators

In the evaluation of quality-describing reporting indicators, the highest scores were achieved in the categories; accuracy and verifiability, (sustainability) evaluation of milk producers, and actuality (see also Table A2). The least points were scored in the inclusion of external voices. In total, the co-operative dairies achieved a higher average score of 28 points than the investor-owned dairy companies with 26.3. Figure 1 shows the comparison of average evaluations between co-operatives and investor-owned dairies per dimension.

In a comparison of the individual evaluation categories, the co-operative dairies performed better in the involvement of interest groups, the quantifiability and the continuity (0.4 points difference each).

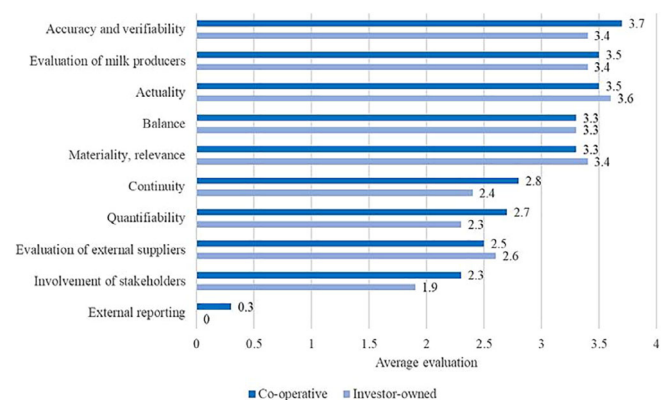


FIGURE 1 Average number of evaluation points per quality descriptive dimension in comparison of the organizational forms [Colour figure can be viewed at wileyonlinelibrary.com]

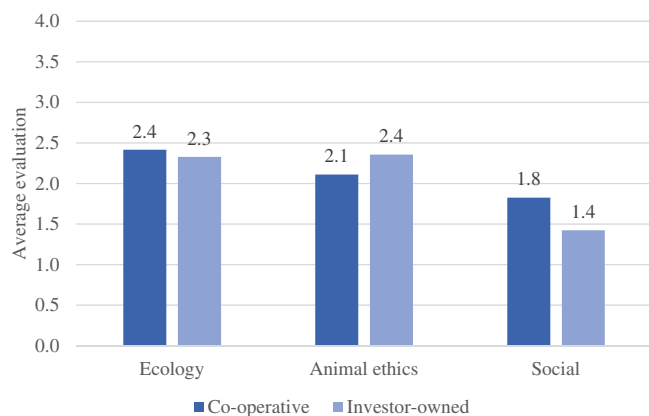


FIGURE 2 Average number of evaluation points per topic dimension in comparison of the organizational forms [Colour figure can be viewed at wileyonlinelibrary.com]

4.3 | Included topics

The most detailed information was reported on products, milk price, education and training, energy, and employment. Little is reported about ingredients and nutritional claims, food waste, traceability, and healthy and affordable products. When comparing the content indicators of co-operative and investor-owned dairies, the co-operatives achieve a higher score, on average, across the ecology and social indicators (Figure 2). On average, investor-owned dairies score higher on the animal ethics indicator. A comparative presentation of the evaluation of individual selected content indicators of co-operatives and investor-owned dairies can be found in Table A3.

Investor-owned dairies achieve better values for their reporting on the indicators water and emissions, waste, and waste water (−1.4 and −0.6 points difference). Co-operative dairies achieve higher scores in reporting on the indicators marketing, milk price, fixed price model, data protection, and biodiversity (differences: 2.2, 1.8, 1.6, 1.5, and 1.3).

5 | DISCUSSION

The examined co-operatives and investor-owned dairies differ in the “how” of their reporting. Co-operatives, compared with investor-owned dairies, are more likely to include their CSR report in their annual financial statements. As a result, interested stakeholders could find it more difficult to obtain information on their CSR activities. This result is consistent with the assumption that co-operatives are less market-driven in their reporting. Co-operatives also communicate sustainability strategies less frequently. These differences could be explained by the lack of strategic investments in dairy co-operatives described in the literature (Zieseniß, 2014). Both forms of organization report a similar number of awards as well as certificates, standards, and labels. For dairy co-operatives, the question arises whether the sustainability reports should not be communicated as a separate report to make them accessible to other interested parties. This

change could contribute to a higher market orientation and have a positive impact on their performance (Benos et al., 2016). Co-operatives can also improve the communication of their sustainability strategy. A further study with more focus on the differences in formal reporting is, therefore, suggested.

The co-operatives and investor-owned firms studied differ in the quality of their CSR reports. Co-operative dairies show a higher average number of points achieved with regards to the GRI reporting principles, although a larger number of investor-owned dairies indicated that they prepare their CSR reports according to the GRI standards. While both co-operatives and investor-owned firms report on milk producer sustainability, the studied co-operatives seem to involve stakeholders more and quantify goals better. A note of caution is due here, because the size of the companies can also play a role in these results (see also Ali et al., 2017). Rottwilm and Theuvsen results show that larger companies disclose more comprehensive information on CSR. The activities of larger companies are of particular public interest, making it all the more important to involve stakeholders and, thus, to focus and address the contents of the report. The study included the largest German dairy co-operative, the Deutsches Milchkontor. The investor-owned dairies considered are smaller companies, which must be considered in terms of interpretation. The greater continuity of co-operative reporting can be explained by the need to inform members. Overall, the examined dairies could improve the quality of their reports by involving external voices and devoting more attention to their stakeholders.

Co-operative dairies in our sample disclose a greater amount of information with more details than investor-owned dairies. In the social and environmental dimensions, co-operatives report more extensively in their CSR reports, whereas in the field of animal ethics, investor-owned dairies report more extensively. The differences are particularly clear in the sub-category milk prices and fixed price model. The higher score of co-operative dairies in these categories could be due to the co-operatives' specific focus on member welfare (see also Soboh et al., 2009). The economic position of the members of dairy co-operatives is largely determined by the milk price. Against this background, it is striking that co-operatives report to give the milk producers the possibility of better planning and encountering volatile prices through a fixed price model. Another significant difference is in reports about marketing. The lead of the co-operatives is a surprising result in view of the weaknesses in sales described by Zieseniß (2014). This raises the question of whether the efforts made by co-operatives in marketing sustainable products may not reach the final consumers.

The results, as well as the previously discussed characteristics of co-operatives and their relation to CSR, suggest that co-operative dairies perform higher in terms of disclosure of CSR, both qualitatively and quantitatively. However, given the small sample size and the restriction to German dairy companies with the disclosure of information by CSR reports, this presumption requires further evidence. The companies' websites provide another starting point for an investigation. By focusing exclusively on websites, a larger number of dairies can be studied. However, the depth and density of information on the

websites in our sample are often lower, meaning that an adjustment of the evaluation scheme could be necessary. Additional research is also needed to uncover further differences in the reporting of CSR by co-operatives and investor-owned companies. In this respect, it is advisable to extend the sample and to look beyond Germany on the basis of an objective evaluation procedure.

The following aspects must be considered when interpreting the results. The investigation of qualitative data involves a certain degree of subjectivity. This point is counteracted with the help of the detailed evaluation forms, a standardized assessment and a reliability test. Currently, there is neither a uniform definition of CSR nor a standardization of the form and content of CSR reporting. Some of the dairies included in the study publish extensive sustainability reports, including GRI indices; other companies provide information without observing any reporting standards, which makes comparisons between the different reports difficult. The 2016 study by authors Rottwilm and Theuvsen concludes that, overall, only a small number of companies in the food industry publish CSR reports. This result is confirmed in the present study for the dairy industry. Only a small number of German dairies publish a CSR report. Many dairies communicate their CSR commitment exclusively via the firm's website. Other dairies are affiliated to large corporations and do not publish independent reports. The quality and timeliness of reports differ considerably between the various dairies, which represents a further challenge. As a result, the small sample examined can only reveal trends and generate assumptions.

In general, when disclosing CSR and evaluating it, it must be questioned whether the reporting corresponds to the real CSR performance of a firm (see also Michelon et al., 2015). A report that is rated below or above average does not indicate a correspondingly high level of social or ecological commitment. The present analysis does not claim to evaluate the effective sustainability commitment of the dairy companies under consideration.

6 | CONCLUSION

Starting from the question whether there are differences in the disclosure of non-financial information of co-operatives and investor-owned firms against the background of co-operatives' specific structure, this study set out to examine CSR reports of co-operative and investor-owned dairies. Notwithstanding the relatively limited sample, our research offers insights into organization-form-specific determinants of CSR reporting. The investigation has shown that the reports of the co-operative dairies are of slightly higher quality than those of the investor-owned firms. Co-operative dairies reported more extensively on social aspects, while slight differences were found in ecology. Investor-owned firms reported more extensively on animal ethics. Our results provide guidance for policymakers on possible strengths of organizational forms in the implementation of CSR measures. Financial support can, thus, be used in a more targeted manner and achieve higher returns. Besides the comparison, our analysis also identifies weaknesses in content and quality that can be used by dairy

companies to reflect on and improve their reporting. We also lay a foundation for further research in the area of organizational form differences in CSR. Further research might explore how organizational form influences CSR activities on the farm level. For example, it remains to be seen whether the different relationships with farmers promote or hinder the implementation of CSR measures. Furthermore, the focus could be shifted to the entire value chain.

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ENDNOTES

- ¹ In practice, the terms sustainability report and CSR report are often used synonymously due to a lack of clear characterization and differentiation. The term CSR report will be used in the following, even if the dairies themselves partly call some of the examined reports sustainability reports.
- ² The sub-sectors included in the study are meat and meat products, dairy products, eggs, bakery and confectionery products, fruit and vegetables, beverages, food retail and non-specialized food producers, feed, and other.

REFERENCES

- Ali, W., Frynas, J. G., & Mahmoud, Z. (2017). Determinants of corporate social responsibility (CSR) disclosure in developed and developing countries: A literature review. *Corporate Social Responsibility and Environmental Management*, 24(4), 273–294.
- Al-Tuwaijri, S. A., Christensen, T. E., & Hughes li, K. E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Accounting, Organizations and Society*, 29(5–6), 447–471.
- Battaglia, M., Bianchi, L., Frey, M., & Passetti, E. (2015). Sustainability reporting and corporate identity: Action research evidence in an Italian retailing cooperative. *Business Ethics: A European Review*, 24(1), 52–72.
- Benos, T., Kalogeras, N., Verhees, F. J., Sergaki, P., & Pennings, J. M. (2016). Cooperatives' organizational restructuring, strategic attributes, and performance: The case of agribusiness cooperatives in Greece. *Agribusiness*, 32(1), 127–150.
- BMU. (2009). *Nachhaltigkeitsberichterstattung: Empfehlungen für eine gute Unternehmenspraxis*. Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU) Referat Öffentlichkeitsarbeit http://www.4sustainability.de/fileadmin/redakteur/Publikationen/BMU_Nachhaltigkeitsberichterstattung_Empfehlungen_Unternehmenspraxis_2008.pdf
- Candemir, A., Duvaleix, S., & Latruffe, L. (2021). Agricultural cooperatives and farm sustainability—A literature review. *Journal of Economic Surveys (Early view)*. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/joes.12417>
- Carrasco, I. (2007). Corporate social responsibility, values, and cooperation. *International Advances in Economic Research*, 13(4), 454–460.
- Cook, M. L. (1995). The future of U.S. agricultural cooperatives: A neo-institutional approach. *American Journal of Agricultural Economics*, 77, 1153–1159.
- Cornforth, C. (2004). The governance of cooperatives and mutual associations: A paradox perspective. *Annals of Public and Cooperative Economics*, 75(1), 11–32.

- European Commission. (2020). *A farm to fork Strategy for a fair, healthy and environmentally-friendly food system*. European Commission https://eur-lex.europa.eu/resource.html?uri=cellar:ea0f9f73-9ab2-11ea-9d2d-01aa75ed71a1.0001.02/DOC_1&format=PDF
- European Parliamentary Research Service (2018). The EU dairy sector: Main features, challenges and prospects. [https://www.europarl.europa.eu/Reg-Data/etudes/BRIE/2018/630345/EPRS_BRI\(2018\)630345_EN.pdf](https://www.europarl.europa.eu/Reg-Data/etudes/BRIE/2018/630345/EPRS_BRI(2018)630345_EN.pdf)
- Eurostat (2020). Household consumption by purpose. http://ec.europa.eu/eurostat/statisticsexplained/index.php/Household_consumption_by_purpose.
- Feng, L., & Hendrikse, G. W. (2012). Chain interdependencies, measurement problems and efficient governance structure: Cooperatives versus publicly listed firms. *European Review of Agricultural Economics*, 39(2), 241–255.
- Fiore, M., Galati, A., Gołębiewski, J., & Drejerska, N. (2020). Stakeholders' involvement in establishing sustainable business models. *British Food Journal*, 122(5), 1671–1691.
- Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & De Colle, S. (2010). *Stakeholder theory. The state of the art*. Cambridge University Press.
- Gamerschlag, R., Möller, K., & Verbeeten, F. (2011). Determinants of voluntary csr disclosure: Empirical evidence from Germany. *Review of Managerial Science*, 5, 233–262.
- GRI (2016). Global reporting initiative standards. <https://www.globalreporting.org/standards/gri-standards-download-center/>.
- Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59, 5–21.
- Halbes, S., Hansen, U., & Schrader, U. (2006). Konsumentenorientierte Kommunikation über Corporate Social Responsibility (CSR). Lehr- und Forschungsbericht Nr. 55. Hanover, June 2006. https://www.econbiz.de/archiv/h/uh/muk/konsumorientierte_kommunikation_corporate.pdf.
- Harte, L., & O'Connell, J. J. (2007). European dairy cooperative strategies: Horizontal integration versus diversity. In K. Karantininis & J. Nilsson (Eds.), *Vertical markets and cooperative hierarchies: The role of cooperatives in the agri-food industry* (pp. 195–211). Springer.
- Hartmann, M. (2011). Corporate social responsibility in the food sector. *European Review of Agricultural Economics*, 38(3), 297–324.
- Herzig, C., & Schaltegger, S. (2006). Corporate sustainability reporting: An overview. In S. Schaltegger, M. Bennett, & R. L. Burritt (Eds.), *Sustainability accounting and reporting* (pp. 301–324). Springer.
- Heyder, M., & Theuvsen, L. (2012). Determinants and effects of corporate social responsibility in German agribusiness: A pls model. *Agribusiness*, 28(4), 400–420.
- Höhler, J., & Kühl, R. (2014). Position and performance of farmer cooperatives in the food supply chain of the EU-27. *Annals of Public and Cooperative Economics*, 85(4), 579–595.
- Höhler, J., & Kühl, R. (2019). What strategies do dairy companies realize? Using content analysis to examine strategies in the German dairy market. *International Food and Agribusiness Management Review*, 22(5), 635–650.
- Hunecke, C., Mehlhose, C., Busch, G., Spiller, A., & Brümmer, B. (2020). Der Markt für Milch und Milcherzeugnisse im Jahr 2019. *German Journal of Agricultural Economics*, 69, 67–92.
- Kumar, D., & Rahman, Z. (2015). Sustainability adoption through buyer supplier relationship across supply chain: A literature review and conceptual framework. *International Strategic Management Review*, 3(1–2), 110–127.
- Luhmann, H., & Theuvsen, L. (2016). Corporate social responsibility in agribusiness: Literature review and future research directions. *Journal of Agricultural and Environmental Ethics*, 29(4), 673–696.
- Maloni, M. J., & Brown, M. E. (2006). Corporate social responsibility in the supply chain: An application in the food industry. *Journal of Business Ethics*, 68(1), 35–52.
- Michelon, G., Pilonato, S., & Ricceri, F. (2015). CSR reporting practices and the quality of disclosure: An empirical analysis. *Critical Perspectives on Accounting*, 33, 59–78.
- MIV—Milch Industrie Verband e.V (2019). Mitgliederverzeichnis. <https://milchindustrie.de/ueber-uns/unsere-mitglieder/>
- Novkovic, S. (2008). Defining the co-operative difference. *The Journal of Socio-Economics*, 37(6), 2168–2177.
- Piao, R. S., Saes, M. S. M., Silva, V. L., & Bronzatto, F. B. (2021). Shaping the sustainable supply chain of organic milk in Brazil. *Journal of Cleaner Production*, 297, 126688.
- Prado-Lorenzo, J. M., Gallego-Alvarez, I., & Garcia-Sanchez, I. M. (2009). Stakeholder engagement and corporate social responsibility reporting: The ownership structure effect. *Corporate Social Responsibility and Environmental Management*, 16(2), 94–107.
- Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2018). Environmental reporting policy and corporate structures: An international analysis. *Corporate Social Responsibility and Environmental Management*, 25(5), 788–798.
- Rottwilm, I., & Theuvsen, L. (2016). Nachhaltigkeitskommunikation in der Ernährungswirtschaft. In C. Willers (Ed.), *CSR und Lebensmittelwirtschaft. Management-Reihe corporate social responsibility* (1st ed., pp. 119–137). Springer Gabler.
- Soboh, R. A., Lansink, A. O., Giesen, G., & Van Dijk, G. (2009). Performance measurement of the agricultural marketing cooperatives: The gap between theory and practice. *Review of Agricultural Economics*, 31(3), 446–469.
- Tibiletti, V., Marchini, P. L., Furlotti, K., & Mediolì, A. (2021). Does corporate governance matter in corporate social responsibility disclosure? Evidence from Italy in the “era of sustainability”. *Corporate Social Responsibility and Environmental Management*, 28(2), 896–907.
- Ullmann, A. A. (1985). Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of US firms. *Academy of Management Review*, 10(3), 540–557.
- Valentinov, V. L. (2004). Toward a social capital theory of cooperative organisation. *Journal of Cooperative Studies*, 37(3), 5–20.
- Van Marrewijk, M. (2003). Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of Business Ethics*, 44(2), 95–105.
- Von Keyserlingk, M. A. G., Martin, N. P., Kebreab, E., Knowlton, K. F., Grant, R. J., Stephenson, M., Sniffen, C. J., Harner, J. P., Wright, A. D., & Smith, S. I. (2013). Invited review: Sustainability of the US dairy industry. *Journal of Dairy Science*, 96(9), 5405–5425.
- Zieseniß, R. (2014). Markterfolg und Erfolgsfaktoren von Genossenschaften und anderen Rechtsformen: Ein Vergleich von deutschen Molkereien anhand betriebswirtschaftlicher Kennzahlen. *German Journal of Agricultural Economics*, 63, 31–45.

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APPENDIX

TABLE A1 List of companies

No.	Name	Organizational form
1	Molkerei Ammerland	Co-operative
2	Andechser Molkerei Scheitz GmbH	Investor-owned
3	Molkerei Berchtesgadener Land	Co-operative
4	Privatmolkerei Bechtel	Investor-owned
5	DMK Group	Co-operative
6	Frischli Milchwerke GmbH	Investor-owned
7	Molkerei Gropper	Investor-owned
8	Hochwald Foods	Co-operative
9	Hohenloher Molkerei	Co-operative
10	Meggle Group	Investor-owned
11	Omira GmbH	Investor-owned
12	Uelzena Gruppe	Co-operative
13	Zott SE & Co. KG	Investor-owned

TABLE A2 Evaluation of quality
descriptive indicators

Indicators	Average co-operatives	Average investor-owned
External reporting	0.3	0
Accuracy and verifiability	3.7	3.4
Quantifiability	2.7	2.3
Actuality	3.5	3.6
Continuity	2.8	2.4
Involvement of stakeholders	2.3	1.9
Balance	3.3	3.3
Materiality, relevance	3.3	3.4
Evaluation of external suppliers	2.5	2.6
Evaluation of milk producers	3.5	3.4

TABLE A3 Included topics by organizational form

Dimension	Category	Indicator	Average co-operatives	Average investor-owned
Ecology		Materials	3.2	3.1
		Energy	3.3	3.6
		Water	2.5	3.9
		Biodiversity	2.2	0.7
		Landscape conservation	1.2	0.4
		Emissions, waste, wastewater	3.0	3.6
		Food waste	0.3	0.0
		Products	3.7	2.7
		Packaging	2.2	3.1
		Transport and supply chains	2.7	1.9
Animal ethics		Animal welfare	3.0	2.4
		Housing conditions	2.2	2.4
		Documentation, inventory management	2.3	2.1
		Prevention and treatment of diseases	1.7	2.1

(Continues)



TABLE A3 (Continued)

Dimension	Category	Indicator	Average co-operatives	Average investor-owned	
		Cow herd performance	1.3	1.3	
		Own standards	2.2	2.0	
Social	Product responsibility	Customer health	1.5	1.0	
		Food safety	2.2	2.4	
		Customer dialog	2.5	1.7	
		Product labeling	0.7	0.9	
		Marketing	2.3	0.1	
		Ingredients and nutritional claims	0.3	0.9	
		Traceability	0.5	0.9	
		Genetically modified organisms	2.0	2.0	
		Milk producer	Milk price	3.5	1.7
			Fixed price model	1.7	0.1
	Labor practices and decent work, human rights	Employment	3.2	2.3	
		Employee–employer relationship	2.5	1.6	
		Education and training	3.3	2.6	
		Occupational safety, health protection	3.0	3.3	
		Diversity and equal opportunities	1.2	1.6	
		Code of conduct	1.8	2.3	
		Fair trade	1.3	0.9	
	Society	Equal treatment	0.8	0.9	
		Impact on the community	2.2	2.3	
		Regional commitment	2.2	2.1	
Fight against corruption		1.2	0.4		
Data protection		1.5	0.0		
Healthy and affordable food		0.7	0.4		