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Use of Strategic Tools in Farm Management: Evidences from the Brazilian Countryside

Uso de Ferramentas Estratégicas na Gestão da Fazenda: Evidências do Interior Brasileiro

ABSTRACT

This study aimed to identify the characteristics associated with the use of strategic tools in the context of rural properties. For this, a survey was carried out, with a sample of 181 farmers from the Dourados microregion, Mato Grosso do Sul state, Brazil. The association of variables was tested using the χ^2 statistics, Phi coefficient and Cramer V coefficient. The results showed that the use of strategic tools is associated with the level of knowledge about strategic management, educational level, farm size, use of control systems, separation of farm spending from family spending and level of knowledge about cost management. It was verified that there were advances in terms of strategic management practices adoption, but informal or undeveloped management predominates in the farms surveyed.

Keyword: strategic management; farmers; strategic tool.

RESUMO

Este estudo buscou identificar as características associadas ao uso das ferramentas estratégicas no contexto das propriedades rurais. Para tanto, foi realizado um *survey*, com uma amostra de 181 produtores rurais da microrregião de Dourados, no Estado do Mato Grosso do Sul, Brasil. Testou-se a associação das variáveis por meio da estatística χ^2, Coeficiente Phi e Coeficiente V de Cramer. Os resultados revelam que o uso das ferramentas estratégicas está associado ao nível de conhecimento sobre gestão estratégica, grau de escolaridade, tamanho da fazenda, uso de sistemas de controle, separação de gastos da fazenda dos gastos pessoais da família e nível de conhecimento sobre gestão de custos. Verificou-se que houve avanços em termos de adoção de práticas de gerenciamento estratégico, porém ainda predomina a gestão informal ou pouco desenvolvida nas fazendas investigadas.

Palavras-Chave: gestão estratégica; produtor rural; ferramenta estratégica

Introduction

Among the various approaches of management, this study focuses on organizational strategy from a perspective of contingency approach, i.e. part of Strategic Management (SM), which aims to create wealth for investors, meeting the needs and expectations of other stakeholders (Wright, Kroll & Parnell, 2000). SM represents the broad process of setting clear mission, vision, goals and objectives, controlling resources to pursue those goals, monitoring and controlling performance against defined goals (Westgren & Cook, 1986).

The planning function becomes a subset of SM, related to the formulation of goals and objectives, establishing strategies and tactics (ways) to achieve them and proposing resource needs. Despite several criticisms of Strategic Planning (SP), especially regarding its formalization, empirical studies provide evidence that SP is still widely practiced by organizations and that Strategic Tools (ST) are an inherent part of the process of planning (Grant, 2003; Mintzberg, 1994; Rigby & Bilodeau, 2005; Westgren & Cook, 1986).

ST are defined as "numerous techniques, tools, methods, models, frameworks, approaches and methodologies that are available to support decision-making within strategic management" (Clark, 1997, p. 417). These tools can raise the level of strategic thinking in organizations and the effectiveness of the SP process as they are flexible instruments and can be adapted to a wide range of strategic tasks (Frost, 2003; Webster, Reif & Bracker, 1989).

Since the 1970s, the society has undergone fast and growing changes, requiring organizations to strategically position themselves to meet these changes in a scenario of shrinking profit margins. In the field of agribusiness, farms have been looking for new models for the managerial and operational standard, driven mainly by new market demands and technological advances in areas such as genetic engineering, agroindustry technology, logistics, among others. The adoption of appropriate SM techniques by agribusiness should result in a more efficient and effective agroindustry system that manifests itself in lower production and marketing costs as well as more effective distribution (Araújo, 2010; Marcomini, 2018; Miles, White & Munilla, 1997; Nantes & Scarpelli, 2009).

Despite ST are important mechanisms for improving strategic thinking, and being widely used in SP processes, we still have little insight into how they are used in the rural world. This gap is widened when agribusiness management practices are analyzed (Clark, 1997; Mazzioni, Zanin, Kruger & Rocha, 2007; Spee & Jarzabkowski, 2009; Zanin, Oenning, Tres, Kruger & Gubiani, 2014).

Thus, this study aimed to identify the characteristics associated with the use of strategic tools (ST) in the context of rural properties in the Dourados microregion, Mato Grosso do Sul state, Brazil. This approach contributes to fill this gap in the literature, especially by turning to the strategic practice of rural managers rather than simply assuming its use (Spee & Jarzabkowski, 2009).

The present study is justified by the specific challenges faced by the farm management, which demands scientific efforts to identify factors that impact the use and deployment of SM in rural areas. The choice for microregion of Dourados was due to the concentration of farms far from the large centers, which despite

contributing significantly to the economy and presenting specific characteristics, are little studied (Araújo, 2010; Nantes & Scarpelli, 2009).

Following this introduction, we present a brief review of the literature on ST as well as on farm management that give theoretical support to hypothesis formulation. Continuing, the methodological procedures are presented detailing the variables and the analysis techniques used in this study. In the results section we present the association the use of ST in rural areas and the level of knowledge about SM, educational level, farm size, separation of farm spending from family spending and the level of knowledge about cost management (CM). Finally, the final considerations and references used in this study are presented.

Strategic tools

There are currently numerous techniques, tools, methods, models, frameworks, approaches, and methodologies that are available to support decision-making at SM (Clark, 1997). Prescott and Grant (1988) evaluated 21 industry-oriented competitive analysis techniques. The authors have developed a guide using 11 dimensions, which gives managers a broad view of trade-offs between techniques.

Webster *et al.* (1989) provided a more general set of 30 ST, considering their relationship to mission setting, competitive/environmental analysis, organizational analysis, planning assumptions, setting objectives and priorities, action plan development and control. Recently, Vuorinen, Hakala, Kohtamaki and Uusitalo (2018) identified 88 strategic tools presented in articles from leading journals between 1990 and 2015.

The creation and use of ST occurs due to the advantages they offer in the planning process: a) force critical thinking; b) encourage managers to focus on the facts; c) put pressure on managers not only to describe situations but also to understand them; d) provide greater discipline and rigor in approaches; e) emphasize the need to develop and apply decision criteria; and f) promote more prepared attitudes (Bellamy, Amoo, Mervyn & Hiddlestone-Mumford, 2019; Kalkan & Bozkurt, 2013; Vuorinen *et al.*, 2018; Webster *et al.*, 1989; Wit, 2017).

Despite the great evolution in the creation of new tools over the years, from competitive analysis to resource and capacity analysis, most of the new tools and techniques implemented have focused on financial aspects (Wit, 2017). In the same vein, Bellamy *et al.* (2019) identified strong guidance for the deployment of operational tools aligned with financial resource management and process planning, monitoring and control.

Organizations should choose ST that best support their strategic objectives and focus on implementing this limited set of tools, thus preventing managers from wasting time and money on tools that are inappropriate, useless, or even dangerous to the business. The usefulness of ST as comprehensive strategic instruments is often undermined by a resistance to the structuring of stakeholder strategic thinking (Pournasir, 2013; Rigby, 2001; Roper & Hodari, 2015).

Grant (2003) warns that the use of ST can make it difficult to create shared meaning between hierarchical levels of the organization. Since design features and properties are important in the selection and implementation of ST, ultimately the role

of ST is to support the interaction between individuals and groups (Spee & Jarzabkowski, 2009; Stenfors, Tanner & Haapalinna, 2004).

Clark (1997), when analyzing the use of ST in New Zealand and the United Kingdom, found that SWOT analysis is the dominant ST in the diagnostic and strategic analysis phases, while in the strategy implementation phase there is a strong use of budget and focus groups. Similar result was obtained in the strategic management analysis of companies in Saudi Arabia (Sahni, 2017), the Czech Republic, Australia and Finland (Afonina & Chalupsky, 2012) and the United Kingdom (Afonina & Chalupsky, 2012; Gunn & Williams, 2007). In general, SWOT analysis is a widely used tool, not only by organizations, but by individuals, groups, project teams (Pandya, 2017).

In the context of Australian small and medium enterprises, the most commonly used ST are Budget, SWOT analysis and PEST analysis, which are considered useful for decision-making (Frost, 2003). In Turkey, SMEs used strategic planning, human resources analysis, total quality management, customer relationship management, outsourcing, financial analysis, vision / mission, PEST and benchmarking analysis more often (Kalkan & Bozkurt, 2013). In the same vein, the ST Mission and Vision statements have been consistently rated as quite useful by the USA managers (Rigby, 2001). Although not using most of the tools investigated, small business managers expressed an interest in becoming familiar with a wide range of SM tools and techniques (Frost, 2003).

Clark (1997) and Stenfors *et al.* (2004) revealed that managers prefer transparent and simple-to-use tools rather than ST based on sophisticated and complex mathematical functions. ST, therefore, assume the role of structuring information and providing the basis for interaction around a strategic decision in a simple way, being easily recognized as useful and legitimate by participants in a strategic task (Figueiredo, 2000; Jarzabkowski & Wilson, 2006; Roper & Hodari, 2015).

Farm management and hypothesis formulation

Rural management involves the organization and administration of the farm, as well as the structuring of decision-making processes and administrative actions, focusing on the efficient use of resources and obtaining compensatory and continuous results (Barbosa, 1983). The context of high costs of agricultural activity and market fluctuations added uncertainties and changes in the rural economic scenario, forcing farmers to well know their business and to properly master the management of the farm's operational and strategic activities (Andrade, Morais, Munhão & Pimenta, 2012).

However, there is a lack of management and accounting controls in rural areas, especially in small farms, where it is verified that producers have great expertise in the development of operational activities, but encounter difficulties in property management (A. A. C. Callado & A. L. C. Callado, 2006; Vorpagel, Hofer & Sontag, 2017; Zanin *et al.*, 2014). One of the main obstacles to implementing the SP in the rural business context is that farmers are unaware of this field's concepts and vocabularies so that they barely think the farm as a business activity, in addition to the low educational attainment of producers interfere with the use of Accounting as

ST (A. A. C. Callado & A. L. C. Callado, 2006; Connell & Hergesheimer, 2014). Given this, two hypotheses arise to be tested.

H1 – The level of knowledge about SM is associated with the use of ST in rural areas.

H2 – The farmer's educational level is associated with the use of ST.

Farm size can also be an important variable to explain the likelihood of farmers planning (Lansink, Berg & Huirne, 2003). Just and Zilberman (1983) found that farm size impacts the adoption of new technologies. Vorpagel *et al.* (2017) identified that the larger the property, the better the management controls of agricultural activities. In this sense, the third hypothesis of this study is formulated.

H3 - Farm size is associated with the use of ST.

According to Ferreira, Lasso and Mainardes (2017), the rural manager recognizes the importance of knowing profitability, monitoring the prices of products and inputs and having an active attitude in view of the farm's financial difficulties. It should be noted that the performance of farms that use financial reporting for decision-making is significantly better than those that do not (Argilés & Slof, 2003). Mazzioni *et al.* (2007) identified that 80% of farms in southern Brazil did not use any form of annotation for decision-making and 84% did not know with conviction the cost of production. Zanin *et al.* (2014) found that only 28% of farms in the interior of Brazil perform some type of management control by activity and only 10% use cash flow control.

Clark (1997) identified a strong use of spreadsheets as management control tools in companies, however, in rural areas there is a gap between farm management and the appropriate use of Information and Communication Technologies (ICTs). In this sense, farmers have access to the computer, the Internet and the mobile phone, however, they often do not record information and control income and expenditure using ICTs (Deponti, 2014). The vast majority of farmers adopt an informal control system, with notebook notes, and more sophisticated management models are restricted to a minority (Vorpagel *et al.*, 2017). Machado, Caleman and Cunha (2017) identified the existence of formal management processes and the adoption of some governance mechanisms in rural areas, but these are still underdeveloped, and their encouragement is needed. This is the fourth hypothesis to be tested in the microregion of Dourados.

H4 – The use of control systems is associated with the use of ST on the farm.

Another aspect to be highlighted is the difficulty in separating farm spending from family spending (Ferreira *et al.*, 2017). Mazzioni *et al.* (2007) found that 86% of rural managers do not separate family spending from farm spending, which can directly impact farm management. According to Machado *et al.* (2017), there is still little clarity on the separation of what is to be remuneration of capital (dividend) and work (wage compensation) by partners, heirs and other family members. Given this, the fifth hypothesis of this study emerges.

H5 – Separation of farm and family spending is associated with the use of ST.

Rural accounting is a powerful management control tool, which has great potential to contribute to the analysis of the results of agricultural activities, especially in future investment decision-making and cost control (Magro, Domenico, Klann & Zanin, 2013). Many farm managers do not perform adequate cost management (CM) due to the lack of knowledge and/or training and the difficulty of its practical application, besides the low value given to accounting as a tool management (Quesado, Silva & Rua, 2018; Mazzioni *et al.*, 2007). In this context, the sixth study hypothesis was developed.

H6 –The level of knowledge about CM is associated with the use of ST in rural areas.

Fatah and Mat-Zin (2014) mention that cost accounting terminology, developed with a focus on industrial companies, can make it difficult to apply in the context of rural organizations. In southeastern Brazil, farmers perceive CM as very important for decision-making, however, its practical use is still incipient (Dumer *et al.*, 2018).

Methodology

To analyze the use of ST in the context of farms and to identify the characteristics associated with the adoption or not of these tools, the hypothetical-deductive method was used, which emphasizes the relevance of the technique and the formulation of hypotheses that are tested later. We chose to conduct a survey with quantitative approach to a population sample of the agricultural sector of the state of Mato Grosso do Sul, Brazil.

The data collection instrument contains four closed questions that address the use of ST and six closed questions regarding the aspects associated with the use of ST. Response alternatives were organized on nominal and ordinal scales. This instrument was submitted to a pretest with five farmers, who recommended the readjustment of the text of some questions and exclusion/insertion of answer alternatives. The detailing of the variables is performed in Table 1.

Table 1

Description of the Variables

Group	Code	Description	Type	Measured at
Use of ST	MVP	Mission, Vision and Purpose - Know the mission, vision and purpose of farm.	Binary categorical	0 = No 1 = Yes
	SWOT	SWOT Analysis - Lifts the strengths, weaknesses, opportunities and threats of farm.	Binary categorical	0 = No 1 = Yes
	PE	Strategic Planning - Performs the strategic planning of the farm.	Binary categorical	0 = No 1 = Yes
	USG	Use of Management Software - Use of software developed for rural areas to control production, costs, expenses and sales.	Binary Categorical	0 = No 1 = Yes
H1	CGE	Strategic Management Knowledge - Farmer's knowledge of strategic management.	Ordinal categorical	0 = None 1 = Little 2 = Regular 3 = Good 4 = Great
H2	ESC	Education Level - The farmer's level of education.	Ordinal categorical	1 = Elementary School 2 = High School 3 = Higher Education
H3	TMH	Farm Size.	Ordinal categorical	1 = Area up to 39.9 ha 2 = Area from 40 ha to 160 ha 3 = Area from 160.1ha to 600 ha 4 = Area greater than 600 ha
H4	USC	Use of Control Systems - Forms of control of production, costs, expenses and farm results.	Ordinal categorical	0 = Without formal control 1 = Spreadsheets/Computer Systems 2 = Notebook paper notes
H5	SG	Separation of Spending - Separates farm spending from family spending.	Ordinal categorical	0 = No 1 = Yes
H6	CGC	Cost Management Knowledge - Farmers' level of knowledge about cost management.	Ordinal categorical	0 = None 1 = Little 2 = Regular 3 = Good 4 = Great

Note. Source: research data.

As population of the study were considered the 340 producers associated to the Rural Union of Caarapó, with their properties located in the municipalities of Caarapó, Dourados, Laguna Carapã, Amambai and Juti, in the state of Mato Grosso do Sul, Brazil. Figure 1 details the location of the state, which is the 5th largest grain producer in Brazil, as well as Dourados microregion, which was chosen to be the most representative in the agricultural sector of the state, as it represents 31.6% of Value Added in GDP of the sector in the State (SEMAGRO, 2018).
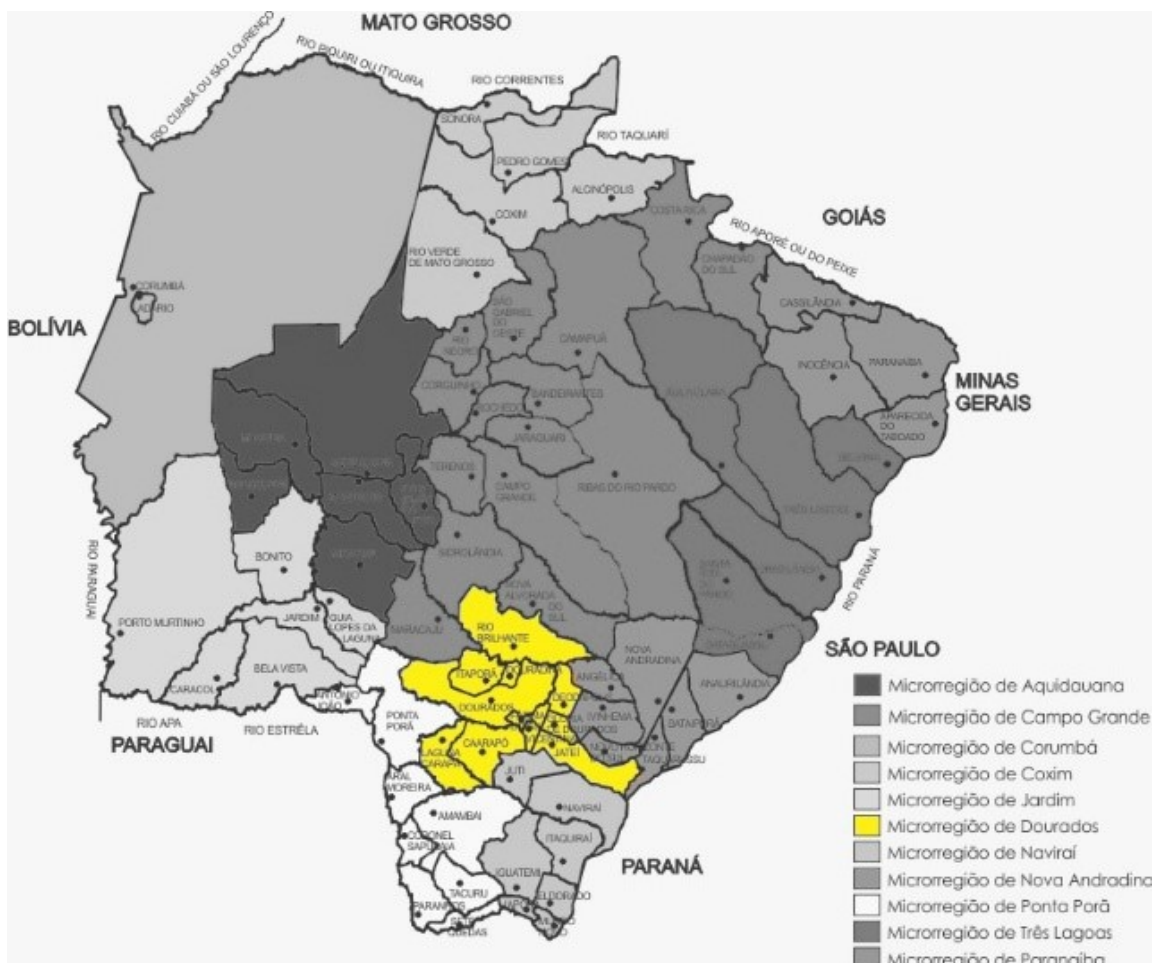
Figure 1. Geographic Location of the Dourados Microregion
Source: Adapted from "*Perfil estatístico de Mato Grosso do Sul 2015*", Secretaria de Estado de Meio Ambiente e Desenvolvimento Econômico (2016). Campo Grande, MS, Brasil.

According to Fonseca and Martins (1996), the calculation to determine the sample of a finite population can be performed through Equation 1.

$$n = \frac{Z^2.p.q.N}{d^2(N-1) + Z^2.p.q} \tag{1}$$

where n is the sample size; Z the abscissa of the standard normal curve; p the estimation of the true proportion of one of the levels of the chosen variable; q is equal to 1 – p; N is the population size and d the admitted sampling error.

Therefore, to meet the objective of this study, with 95% confidence and 5% error, the sample must be 181 respondents. The selection of participants was performed randomly, through the draw, using the list of farms in the region.

After sample selection, a telephone contact was made with the farmer to explain the purpose of the study and to schedule an interview. The questionnaire was applied individually at the headquarters of the farms, from August to October 2018, lasting approximately 45 minutes each. In cases where the selected farmer did not answer the calls, a new draw was made considering the remaining farmers. Therefore, the collected sample totaled 181 observations, which is the basis of analysis of this study.

Association analysis between variables

To analyze the association between the pairs of categorical variables, the chi-square statistics (χ^2) was used. The test χ^2, calculated using Equation 2, "measures the discrepancy between an observed contingency table and an expected contingency table, assuming that there is no association between the studied variables" (Fávero & Belfiore, 2017, p. 102).

$$\chi^2 = \sum_{i=1}^{I} \sum_{j=1}^{J} \frac{\left(O_{ij} - E_{ij}\right)^2}{E_{ij}} \qquad (2)$$

where O_{ij} represents the amount of observations in the ith category of variable X and the jth category of variable Y; E_{ij} is the expected frequency of observations in the ith category of variable X and the jth category of variable Y; I is the number of categories of variable X and J the number of categories of variable Y.

The choice of this method of analysis is justified because it is a hypothesis test, which does not depend on population parameters, designed to evaluate the association between frequencies of qualitative variables. We used, in a complementary and confirmatory way, the Phi Coefficient that is appropriate for 2×2 contingency tables, expressed as follows.

$$Phi = \sqrt{\frac{\chi^2}{n}} \qquad (3)$$

The Cramer's V Coefficient was also used, which is an alternative to the Phi coefficient, as its value is limited to the interval [0.1], regardless of the number of categories of the nominal variable (Fávero & Belfiore, 2017). The Cramer's V Coefficient is calculated using Equation 4.

$$V = \sqrt{\frac{\chi^2}{n.(q-1)}} \qquad (4)$$

where $q = \min(I, J)$; I is the number of rows and J is the number of columns in a contingency table.

The significance level was set at 5% and all analyzes were performed with the Statistical Package for the Social Sciences (SPSS), version 25. To better understand the associations identified, it was also decided to present the variables in tables contingency.

Results and discussions

As this study turns to the strategic practice of rural managers, instead of simply assuming its use (Spee & Jarzabkowski, 2009), the following is a descriptive analysis of the use of ST by farmers in the microregion of Dourados.

Table 2

Absolute Frequency of Use of ST

ST		MVP		Total	SWOT		Total	PE		Total	USG		Total
		No	Yes		No	Yes		No	Yes		No	Yes	
MVP	**No**	83	-	**83**									
	Yes	-	98	**98**									
	Total	**83**	**98**	**181**									
SWOT	**No**	77	28	**105**	105	-	**105**						
	Yes	6	70	**76**	-	76	**76**						
	Total	**83**	**98**	**181**	**105**	**76**	**181**						
PE	**No**	63	60	**123**	91	32	**123**	123	-	**123**			
	Yes	20	38	**58**	14	44	**58**	-	58	**58**			
	Total	**83**	**98**	**181**	**105**	**76**	**181**	**123**	**58**	**181**			
USG	**No**	69	52	**121**	93	28	**121**	109	12	**121**	121	-	**121**
	Yes	14	46	**60**	12	48	**60**	14	46	**60**	-	60	**60**
	Total	**83**	**98**	**181**	**105**	**76**	**181**	**123**	**58**	**181**	**121**	**60**	**181**

Note. Source: research data.

MVP was found to be the only FE that most managers (54.1%) use in farm management, demonstrating that, as in the United States (Rigby, 2001), Brazilian rural managers also consider the statements MVP files. As for the other EF analyzed, there is a low utilization (35.7%). These findings corroborate with Spee and Jarzabkowski (2009) in that, assuming the use of ST is a mistake, because in the strategic practice of rural managers, ST is still little used.

It is also noteworthy that, although most managers know the farm's MVP, they do not use the PE in practice. They do not analyze the strengths, weaknesses, threats and opportunities, nor do they use management software, having little effect on the strategic positioning of the farm. This scenario shows that ST, although widely used in other contexts (Clark, 1997; Frost, 2003; Rigby, 2001), in the microregion of Dourados, its use is still incipient.

Subsequently, the association between the use of ST in rural areas and the level of knowledge about SM, educational level, farm size, separation of spending and the level of knowledge about CM was statistically tested. Results are presented in Table 3.

Table 3

Statistics χ^2, *Phi* Coefficient and Cramer's *V* Coefficient

Variable	Statistics		Mission, Vision and Purpose	SWOT Analysis	Strategic Planning	Use of Management Software
Strategic Management Knowledge	χ^2	Value	61,600	85,430	40,094	64,477
		Significance	0.000*	0.000*	0.000*	0.000*
	Phi	Value	0.583	0.687	0.471	0.597
		Significance	0.000*	0.000*	0.000*	0.000*
	Cramer's *V*	Value	0.583	0.687	0.471	0.597
		Significance	0.000*	0.000*	0.000*	0.000*
Educational Level	χ^2	Value	40,290	26,981	6,693	22,937
		Significance	0.000*	0.000*	0.035*	0.000*
	Phi	Value	0.472	0.386	0.192	0.356
		Significance	0.000*	0.000*	0.035*	0.000*
	Cramer's *V*	Value	0.472	0.386	0.192	0.356
		Significance	0.000*	0.000*	0.035*	0.000*
Farm Size	χ^2	Value	19,880	8,760	34,324	28,673
		Significance	0.000*	0.000*	0.000*	0.000*
	Phi	Value	0.331	0.220	0.435	0.398
		Significance	0.000*	0.033*	0.000*	0.000*
	Cramer's *V*	Value	0.331	0.220	0.435	0.398
		Significance	0.000*	0.033*	0.000*	0.000*
Use of Control Systems	χ^2	Value	64,987	51,661	35,204	54,209
		Significance	0.000*	0.000*	0.000*	0.000*
	Phi	Value	0.599	0.534	0.441	0.547
		Significance	0.000*	0.000*	0.000*	0.000*
	Cramer's *V*	Value	0.599	0.534	0.441	0.547
		Significance	0.000*	0.000*	0.000*	0.000*
Separation of farm spending from family spending	χ^2	Value	38,953	20,234	31,891	42,268
		Significance	0.000*	0.000*	0.000*	0.000*
	Phi	Value	0.464	0.334	0.420	0.483
		Significance	0.000*	0.000*	0.000*	0.000*
	Cramer's *V*	Value	0.464	0.334	0.420	0.483
		Significance	0.000*	0.000*	0.000*	0.000*
Cost Management Knowledge	χ^2	Value	80,705	61,186	24,147	38,286
		Significance	0.000*	0.000*	0.000*	0.000*
	Phi	Value	0.668	0.581	0.365	0.460
		Significance	0.000*	0.000*	0.000*	0.000*
	Cramer's *V*	Value	0.668	0.581	0.365	0.460
		Significance	0.000*	0.000*	0.000*	0.000*

Note. *Significance <0.05, n= 181 valid cases. Source: research data.

Based on the results of χ^2, *Phi* and Cramer's *V* tests, we reject the null hypothesis that the variables are independent, so it can be stated that there are statistically significant associations at the 95% confidence level and 5% significance between the use of ST and the level of knowledge about strategic management, educational level of the farmer, farm size, use of control systems, separation of farm spending from family spending and level of knowledge about cost management. To better understand these relationships, the following sections present cross-reference tables and the analysis supported by the literature.

The level of knowledge about strategic management and its association with the use of strategic tools

Given the importance of the farmer to know SM, it was found in this study that only 28.2% of participants say they have great or good knowledge about SM, a fact that may explain the low use of ST in farm management. Given this, Table 4 shows the ST detailed by level of knowledge about SM.

Table 4

Use of ST Detailed by Level of SM Knowledge

CGE		MVP		SWOT		PE		USG		Total
		No	Yes	No	Yes	No	Yes	No	Yes	
Great	n	0	10	0	10	4	6	0	10	**10**
	% CGE	0.0%	100.0%	0.0%	100.0%	40.0%	60.0%	0.0%	100.0%	**100.0%**
	% Total	0.0%	5.5%	0.0%	5.5%	2.2%	3.3%	0.0%	5.5%	**5.5%**
Good	n	3	38	5	36	15	26	13	28	**41**
	% CGE	7.3%	92.7%	12.2%	87.8%	36.6%	63.4%	31.7%	68.3%	**100.0%**
	% Total	1.7%	21.0%	2.8%	19.9%	8.3%	14.4%	7.2%	15.5%	**22.7%**
Regular	n	40	41	51	30	57	24	61	20	**81**
	% CGE	49.4%	50.6%	63.0%	37.0%	70.4%	29.6%	75.3%	24.7%	**100.0%**
	% Total	22.1%	22.7%	28.2%	16.6%	31.5%	13.3%	33.7%	11.0%	**44.8%**
Little	n	25	9	34	0	32	2	32	2	**34**
	% CGE	73.5%	26.5%	100.0%	0.0%	94.1%	5.9%	94.1%	5.9%	**100.0%**
	% Total	13.8%	5.0%	18.8%	0.0%	17.7%	1.1%	17.7%	1.1%	**18.8%**
None	n	15	0	15	0	15	0	15	0	**15**
	% CGE	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	**100.0%**
	% Total	8.3%	0.0%	8.3%	0.0%	8.3%	0.0%	8.3%	0.0%	**8.3%**
Total	n	83	98	105	76	123	58	121	60	**181**
	% Total	45.9%	54.1%	58.0%	42.0%	68.0%	32.0%	66.9%	33.1%	**100.0%**

Note. Source: research data.

Table 4 shows that most farmers who have regular, little or no knowledge about SM no use MVP, SWOT, SP and USG in farm management, corroborating the results found in the study by Connell and Hergesheimer (2014), when they state that lack of knowledge about SM concepts and vocabularies is associated with low use of ST, which is considered a barrier to the adoption of SM in rural areas. This finding is reinforced by analyzing the use of ST by managers who claim to have a great or good level of knowledge about SM, given that these producers mostly adopt ST in practice.

The farmer's educational level and its association with the use of the strategic tools

According to A. A. C. Callado and A. L. C. Callado (2006), the low educational level of farmers interferes with the use of Accounting as ST. In this sense, this study identified that most respondents have elementary education, that is, have a low level of education. Table 5 shows the use of ST detailed by educational level of the farmer.

Table 5

Use of ST Detailed by Level of Education

ESC		MVP		SWOT		PE		USG		Total
		No	Yes	No	Yes	No	Yes	No	Yes	
Higher Education	*n*	4	32	10	26	18	18	12	24	**36**
	% ESC	11.1%	88.9%	27.8%	72.2%	50.0%	50.0%	33.3%	66.7%	**100.00%**
	% Total	2.2%	17.7%	5.5%	14.4%	9.9%	9.9%	6.6%	13.3%	**19.89%**
High School	*n*	20	40	30	30	44	16	44	16	**60**
	% ESC	33.3%	66.7%	50.0%	50.0%	73.3%	26.7%	73.3%	26.7%	**100.00%**
	% Total	11.1%	22.10 %	16.57 %	16.57%	24.31 %	8.84%	24.31 %	8.84%	**33.15%**
Elementary School	*n*	59	26	65	20	61	24	65	20	**85**
	% ESC	69.4%	30.6%	76.5%	23.5%	71.8%	28.2%	76.5%	23.5%	**100.00%**
	% Total	32.6%	14.4%	35.9%	11.1%	33.7%	13.3%	35.9%	11.1%	**46.96%**
Total	*n*	83	98	105	76	123	58	121	60	**181**
	% Total	45.9%	54.1%	58.0%	5.0%	68.0%	32.0%	66.9%	33.2%	**100.00%**

Note. Source: research data.

Farmers who have a lower level of education have little use of ST. For those who have high school, there is greater use of MVP and SWOT and for those with higher education, there is greater adherence of ST in property management. These findings complement the view of A. A. C. Callado and A. L. C. Callado (2006), as they reveal that the low educational level of farmers also interferes with the use of MVP, SWOT, SP and USG, that is, it was evident that the higher the educational level of the farmers, the greater the use of ST in rural management will be.

The size of the farm and its association with the use of strategic tools

Farm size may explain the likelihood of farmers planning and adopting new technologies (Just & Zilberman, 1983; Lansink *et al.*, 2003). In this context, it was verified if the size of the farm is associated with the use of ST. The results are presented in Table 6.

Approximately 70% of the farms have an area of more than 160ha, that is, they are larger and, consequently, have larger investments. It is noted that the managers of larger farms (areas larger than 660ha) mainly adopt the ST. Only the SWOT analysis was adopted by less than 50% of large farms managers. This result corroborates with Vorpagel *et al.* (2017), because it demonstrates that the ST are more used in larger properties, resulting in greater planning, organization, control and direction of agricultural activities. The results also reveal that most small farms do not use ST, especially SM and USG, which was not adopted by any small farm.

Table 6

Use of ST Detailed by Farm Size

TMH		MVP		SWOT		PE		USG		Total
		No	Yes	No	Yes	No	Yes	No	Yes	
Area greater than 600ha	n	28	54	44	38	38	44	40	42	**82**
	% TMH	34.1%	65.9%	53.7%	46.3%	46.3%	53.7%	48.8%	51.2%	**100.0%**
	% Total	15.5%	29.8%	24.3%	21.0%	21.0%	24.3%	22.1%	23.2%	**45.3%**
Area from 160.1ha to 600ha	n	20	26	26	20	38	8	32	14	**46**
	% TMH	43.5%	56.5%	56.5%	43.5%	82.6%	17.4%	69.6%	30.4%	**100.0%**
	% Total	11.0%	14.4%	14.4%	11.0%	21.0%	4.4%	17.7%	7.7%	**25.4%**
Area from 40ha to 160ha	n	18	16	18	16	28	6	30	4	**34**
	% TMH	52.9%	47.1%	52.9%	47.1%	82.4%	17.6%	88.2%	11.8%	**100.0%**
	% Total	9.9%	8.8%	9.9%	8.8%	15.5%	3.3%	16.6%	2.2%	**18.8%**
Area up to 39.9ha	n	17	2	17	2	19	0	19	0	**19**
	% TMH	89.5%	10.5%	89.5%	10.5%	100.0%	0.0%	100.0%	0.0%	**100.0%**
	% Total	9.4%	1.1%	9.4%	1.1%	10.5%	0.0%	10.5%	0.0%	**10.5%**
Total	n	83	98	105	76	123	58	121	60	**181**
	% Total	45.9%	54.1%	58.0%	42.0%	68.0%	32.0%	66.9%	33.1%	**100.0%**

Note. Source: research data.

The use of control systems and their association with the use of strategic tools

It is undeniable the importance of using financial reports to know the profitability, monitor farm performance, product prices and inputs, and ICTs are an important instrument for adoption of controls on rural property (Argilés & Slof, 2003; Clark, 1997; Deponti, 2014; Ferreira *et al.*, 2017). Given this, it was verified how managers perform the controls of production, costs, expenses and results of the farm. Results are presented in Table 7.

Table 7 shows that most managers adopt controls through systems and spreadsheets, and only 28.2% do not perform any formal controls, demonstrating a different scenario from that identified by Mazzioni *et al.* (2007) and Zanin *et al.* (2014), who found that between 70% and 80% or managerial control. In this sense, it could be seen that in the studied context, there are advances in terms of the use of formal controls. However, there are still farmers using notebook paper notes, informally or underdeveloped, and their encouragement is needed, as mentioned by Machado *et al.* (2017).

Table 7

Detailed Use of ST by Type of Control Adopted by the Farmer

USC		MVP		SWOT		PE		USG		Total
		No	Yes	No	Yes	No	Yes	No	Yes	
Spreadsheets Computer Systems	*n*	22	84	38	68	56	50	48	58	**106**
	% USC	20.8%	79.2%	35.8%	64.2%	52.8%	47.2%	45.3%	54.7%	**100.0%**
	% do Total	12.2%	46.4%	21.0%	37.6%	30.9%	27.6%	26.5%	32.0%	**58.6%**
Notebook paper notes	*n*	19	5	22	2	16	8	22	2	**24**
	% USC	79.2%	20.8%	91.7%	8.3%	66.7%	33.3%	91.7%	8.3%	**100.0%**
	% do Total	10.5%	2.8%	12.2%	1.1%	8.8%	4.4%	12.2%	1.1%	**13.3%**
Without formal control	*n*	42	9	45	6	51	0	51	0	**51**
	% USC	82.4%	17.6%	88.2%	11.8%	100.0%	0.0%	100.0%	0.0%	**100.0%**
	% do Total	23.2%	5.0%	24.9%	3.3%	28.2%	0.0%	28.2%	0.0%	**28.2%**
Total	*n*	83	98	105	76	123	58	121	60	**181**
	% do Total	45.9%	54.1%	58.0%	42.0%	68.0%	32.0%	66.9%	33.1%	**100.0%**

Note. Source: research data.

Separation of farm spending from family spending and its association with the use of strategic tools

Respecting the entity's accounting principle, where the investor's assets are not to be confused with those of the organization, is fundamental to the proper financial management of the company. In the area of farm management, managers find it difficult to separate farm spending from family spending (Ferreira *et al.*, 2017), not respecting the entity principle. Table 8 presents the results of this study, regarding the practice of separation farm spending from personal family spending and its association with the use of ST.

Table 8

Separation Farm Spending from Personal Family Spending and the Use of ST

SG		MVP		SWOT		PE		USG		Total
		No	Yes	No	Yes	No	Yes	No	Yes	
No	*n*	54	19	57	16	67	6	69	4	**73**
	% SG	74.0%	26.0%	78.1%	21.9%	91.8%	8.2%	94.5%	5.5%	**100.0%**
	% Total	29.8%	10.5%	31.5%	8.8%	37.0%	3.3%	38.1%	2.2%	**40.3%**
Yes	*n*	29	79	48	60	56	52	52	56	**108**
	% SG	26.9%	73.1%	44.4%	55.6%	51.9%	48.1%	48.1%	51.9%	**100.0%**
	% Total	16.0%	43.6%	26.5%	33.1%	30.9%	28.7%	28.7%	30.9%	**59.7%**
Total	*n*	83	98	105	76	123	58	121	60	**181**
	% Total	45.9%	54.1%	58.0%	42.0%	68.0%	32.0%	66.9%	33.1%	**100.0%**

Note. Source: research data.

Table 8 shows that most farmers separate personal spending from farm spending, revealing a different reality from that observed by Mazzioni *et al.* (2007), where 86% of rural managers do not separate spending. However, it is noteworthy

that a large part (42.8% average) of those who make the separation of spending do not use the ST.

Those who do not make the separation of spending rarely adopt the ST in practice (average 15.4%). When analyzing farmers who do not separate spending, it is noted that few use ST, while the opposite is the case when spending separation is a practice, revealing that managers who have a business view of the farm tend to adopt ST, being the separation of spending a first indicator of strategic management on the farm.

The level of cost management knowledge and its association with the use of strategic tools

Many farm managers do not perform adequate cost management (CM) due to lack of knowledge and difficulty of its practical application (Quesado *et al.*, 2018). Despite being perceived by farmers as very important for decision-making, the practical use of CM is still incipient (Dumer *et al.*, 2018). Given this, the farmer's level of knowledge about CM and its association with the use of ST were verified, as shown in Table 9.

Table 9

Use of FE Detailed by Level of Knowledge about CM

	CGC	MVP		SWOT		PE		USG		Total
		No	Yes	No	Yes	No	Yes	No	Yes	
None	n	13	0	13	0	13	0	13	0	**13**
	% CGC	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	**100.0%**
	% Total	7.2%	0.0%	7.2%	0.0%	7.2%	0.0%	7.2%	0.0%	**7.2%**
Little	n	17	3	20	0	20	0	20	0	**20**
	% CGC	85.0%	15.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	**100.0%**
	% Total	9.4%	1.7%	11.0%	0.0%	11.0%	0.0%	11.0%	0.0%	**11.0%**
Regular	n	50	32	56	26	56	26	60	22	**82**
	% CGC	61.0%	39.0%	68.3%	31.7%	68.3%	31.7%	73.2%	26.8%	**100.0%**
	% Total	27.6%	17.7%	30.9%	14.4%	30.9%	14.4%	33.1%	12.2%	**45.3%**
Good	n	3	53	16	40	28	28	26	30	**56**
	% CGC	5.4%	94.6%	28.6%	71.4%	50.0%	50.0%	46.4%	53.6%	**100.0%**
	% Total	1.7%	29.3%	8.8%	22.1%	15.5%	15.5%	14.4%	16.6%	**30.9%**
Great	n	0	10	0	10	6	4	2	8	**10**
	% CGC	0.0%	100.0%	0.0%	100.0%	60.0%	40.0%	20.0%	80.0%	**100.0%**
	% Total	0.0%	5.5%	0.0%	5.5%	3.3%	2.2%	1.1%	4.4%	**5.5%**
Total	n	83	98	105	76	123	58	121	60	**181**
	% CGC	45.9%	54.1%	58.0%	42.0%	68.0%	32.0%	66.9%	33.1%	**100.0%**
	% Total	45.9%	54.1%	58.0%	42.0%	68.0%	32.0%	66.9%	33.1%	**100.0%**

Note. Source: research data.

Table 9 shows that most farmers claim to have regular knowledge of CM, implying low use of ST. However, 36.4% have good or great knowledge about CM and most of them adopt ST in farm management. Although rural accounting is a powerful management control tool with great potential to contribute to the analysis of

the results of rural activities (Magro *et al.*, 2013), there is a low number of farmers with good/excellent knowledge about CM (36.8%) in the studied context. This finding demonstrates the association between the use of ST by managers who have a higher level of knowledge about CM, and may explain the low or no use of ST by managers who do not have insufficient or no knowledge about CM.

Conclusions

This study aimed to identify the characteristics associated with the use of strategic tools (ST) in the context of rural properties in the Dourados microregion, Mato Grosso do Sul state, Brazil. It is noteworthy that one of the main contributions of this work is the identification of the incipient use of ST in the strategic practice of rural managers, revealing that, when studying strategic management in the context of agribusiness, one should not simply assume the use of ST, corroborating with Spee and Jarzabkowski (2009).

Statistical evidence allows us to infer that the use of ST in the interior of Brazil is associated with the level of knowledge about strategic management, educational level of the farmer, farm size, use of control systems, separation of farm spending from family spending and level of management knowledge of costs. The results show that most farmers use ST very little in farm management, have little or no knowledge of strategic management and cost management, however, they separate household and farm expenditures and use controls through systems and spreadsheets. In this sense, it was possible to verify that, in the studied context, there are advances in terms of control, but informal or undeveloped management still predominates, and its encouragement is necessary.

The education variable proved to be important to understand the strategic practice of rural managers, since it was evidenced that the ST are little used by farmers who have lower level of education and more used by those with higher level. In the same direction, the size variable was associated with the use of ST, since ST is more used in larger properties and little used by smaller farms.

The results presented here can be used in the development of public policies aimed at training farmers, mainly because they reveal that small farms and managers with little education do not use ST in practice. Class entities can also consider these results to promote lectures, seminars, workshops that help managers develop strategic thinking, focusing on strategic management and cost management, with a focus on outlining strategies and internal structures that allow for appropriate adjustment the business environment (Garcés-Galdeano, García-Olaverri & Huerta, 2016).

The study limitations include the application of questionnaires in a single region in the microregion of Dourados, the possible bias in the answers, as well as the analysis of other variables that may interfere with the use of ST in the context of farms, as well as the use of a restricted number of ST. Despite the limitations mentioned, it is believed that the goal was achieved and that the findings contribute to the debate on the use of ST.

Given the economic, social and environmental importance of agribusiness, it is suggested that future studies be conducted comparing the results presented here with the scenario of other countries or regions of Brazil. Such comparisons may

validate the results of this study or include other variables in the analysis, aiming at generating new insights and advances for the studies of rural organizations. It is also suggested to use logistic regression analysis to identify the likelihood of farmers adopting ST in farm management. This approach can make specific contributions to the variables that need to be worked out by public authorities or class entities in order to increase the use of ST in rural areas.

References

Afonina, A., & Chalupsky, V. (2012). The current strategic management tools and techniques: The evidence from Czech Republic. *Economics and Management*, *17*(4), 1535-1544. http://dx.doi.org/10.5755/j01.em.17.4.3026

Andrade, M. G. F. de, Morais, M. I. de, Munhão, E. E., & Pimenta, P. R. (2012). Controle de custos na agricultura: Um estudo sobre a rentabilidade na cultura da soja. *Custos e Agronegócio On Line*, *8*(3), 24-45.

Araújo, M. J. (2010). *Fundamentos de agronegócios* (3a ed.). São Paulo: Atlas.

Argilés, J. M., & Slof, E. J. (2003). The use of financial accounting information and firm performance: An empirical quantification for farms. *Accounting and Business Research*, *33*(4), 251-264. https://doi.org/10.1080/00014788.2003.9729653

Barbosa, J. S. (1983). *Administração rural em nível de fazendeiro*. São Paulo: Nobel.

Bellamy, L. C., Amoo, N., Mervyn, K., & Hiddlestone-Mumford, J. (2019). The use of strategy tools and frameworks by SMEs in the strategy formation process. *International Journal of Organizational Analysis*, *27*(2), 337-367. https://doi.org/10.1108/IJOA-02-2018-1363

Callado, A. A. C., & Callado, A. L. C. (2006). Mensuração e controle de custos: Um estudo empírico em empresas agroindustriais. *Sistemas & Gestão*, *1*(2), 132-141.

Clark, D. N. (1997). Strategic management tool usage: A comparative study. *Strategic Change*, *6*(7), 417-427. https://doi.org/10.1002/(SICI)1099-1697(199711)6:7<417::AID-JSC281>3.0.CO;2-9

Connell, D., & Hergesheimer, C. (2014). Strengthening the core business of farmers markets through strategic business planning. *Journal of Agriculture, Food Systems, and Community Development*, *4*(4), 97-108. https://doi.org/10.5304/jafscd.2014.044.017

Deponti, C. M. (2014). As "agruras" da gestão da propriedade rural pela agricultura familiar [Edição Especial]. *Revista do Desenvolvimento Regional*, *19*, 9-24. http://dx.doi.org/10.17058/redes.v19i2014.5150

Dumer, M. C. R., Silva, A. da, Junior, Silva, A. A. B. F. da, Souza, A. M. de, Gobbi, B. C., Mendonça, M. M. de, & Gomes, J. B. (2018). Nível de conhecimento e

utilização das ferramentas da contabilidade de custos na produção de leite no município de Alfredo Chaves-ES. *Custos e Agronegócio On Line*, *14*(4), 127-148.

Fatah, A. M., & Mat-Zin, R. (2014). Literature review of the practice of cost accounting system in the agricultural firms. *Journal of Commerce & Accounting Research*, *3*(1), 16-20.

Fávero, L. P., & Belfiore, P. (2017). *Manual de análise de dados*. Rio de Janeiro: Elsevier.

Ferreira, J. B., Lasso, S. V., & Mainardes, E. (2017). Características empreendedoras do produtor rural capixaba. *Gestão & Regionalidade*, *33*(99), 74-90. https://doi.org/10.13037/gr.vol33n99.2943

Figueiredo, D. F. (2000). Uma reflexão sobre o planejamento estratégico. *Revista Administração em Diálogo*, *2*(1), 2-26. https://doi.org/10.20946/rad.v2i1.1697

Fonseca, J. S., & Martins, G. A. (1996). *Curso de estatística* (6a ed.). São Paulo: Atlas.

Frost, F. A. (2003). The use of strategic tools by small and medium-sized enterprises: An Australasian study. *Strategic Change*, *12*(1), 49-62. https://doi.org/10.1002/jsc.607

Garcés-Galdeano, L., García-Olaverri, C., & Huerta, E. (2016). Management capability and performance in Spanish family firms. *Academia Revista Latinoamericana de Administración*, *29*(3), 303-325. https://doi.org/10.1108/arla-08-2015-0195

Grant, R. M. (2003). Strategic planning in a turbulent environment: Evidence from the oil majors. *Strategic Management Journal*, *24*(6), 491-517. https://doi.org/10.1002/smj.314

Gunn, R., & Williams, W. (2007). Strategic tools: An empirical investigation into strategy in practice in the UK. *Strategic Change*, *16*(5), 201-216. https://doi.org/10.1002/jsc.799

Jarzabkowski, P., & Wilson, D. C. (2006). Actionable strategy knowledge: A practice perspective. *European Management Journal*, *24*(5), 348-367. https://doi.org/10.1016/j.emj.2006.05.009

Just, R. E., & Zilberman, D. (1983). Stochastic structure, farm size and technology adoption in developing agriculture. *Oxford Economic Papers*, *35*(2), 307-328. https://doi.org/10.1093/oxfordjournals.oep.a041598

Kalkan, A., & Bozkurt, Ö. Ç. (2013). The choice and use of strategic planning tools and techniques in Turkish SMEs according to attitudes of executives. *Procedia – Social and Behavioral Sciences*, *99*, 1016-1025. https://doi.org/10.1016/j.sbspro.2013.10.575

Lansink, A. O., Berg, M. van den, & Huirne, R. (2003). Analysis of strategic planning of Dutch pig farmers using a multivariate probit model. *Agricultural Systems*, *78*(1),

73-84. https://doi.org/10.1016/S0308-521X(03)00034-9

Machado, C. P., Filho, Caleman, S. M. de Q., & Cunha, C. F. da (2017). Governance in agribusiness organizations: Challenges in the management of rural family firms. *Revista de Administração*, *52*(1), 81-92. https://doi.org/10.1016/j.rausp.2016.09.004

Magro, C. B. dal, Domenico, D. di, Klann, C. R., & Zanin, A. (2013). Contabilidade rural: Comparativo na rentabilidade das atividades. *Custos e Agronegócio On Line*, *9*(1), 2-22.

Marcomini, G. R. (2018). A utilização de ferramentas de planejamento financeiro em empresas produtoras de café. *Revista de Agronegócio*, *7*(2), 1-16.

Mazzioni, S., Zanin, A., Kruger, S. D., & Rocha, J. L. K. (2007). A importância dos controles gerenciais para o agribusiness. *Revista Catarinense da Ciência Contábil*, *6*(16), 9-26. https://doi.org/10.16930/2237-7662/rccc.v6n16p9-26

Miles, M. P., White, J. B., & Munilla, L. S. (1997). Strategic planning and agribusiness: An exploratory study of the adoption of strategic planning techniques by cooperatives. *British Food Journal*, *99*(11), 401-408. https://doi.org/10.1108/00070709710196481

Mintzberg, H. (1994). The fall and rise of strategic planning. *Harvard Business Review*, *72*(1), 107-114.

Nantes, J. F. D., & Scarpelli, M. (2009). Elementos de gestão na produção rural. In M. O. Batalha (Coord.), *Gestão agroindustrial* (3a ed., pp. 629-664). São Paulo: Atlas.

Pandya, S. (2017). Improving the learning and developmental potential of SWOT analysis: Introducing the LISA framework. *Strategic Direction*, *33*(3), 12-14. https://doi.org/10.1108/SD-09-2016-0132

Pournasir, S. (2013). Key success factors of strategic management implementation in SMES in Iran. *Journal of International Studies*, *6*(2), 65-78. https://doi.org/10.14254/2071-8330.2013/6-2/6

Prescott, J. E., & Grant, J. H. (1988). A manager's guide for evaluating competitive analysis techniques. *Interfaces*, *18*(3), 10-22. https://doi.org/10.1287/inte.18.3.10

Quesado, P. R., Silva, M. de L. R. da, & Rua, S. C. (2018). A contabilidade financeira e a gestão de custos na atividade agrícola. *Custos e Agronegócio On Line*, *14*(4), 241-258.

Rigby, D. (2001). Management tools and techniques: A survey. *California Management Review*, *43*(2), 139-160. https://doi.org/10.2307/41166079

Rigby, D., & Bilodeau, B. (2005). The Bain 2005 management tool survey. *Strategy & Leadership*, *33*(4), 4-12. https://doi.org/10.1108/10878570510607997

Roper, A., & Hodari, D. (2015). Strategy tools: Contextual factors impacting use and usefulness. *Tourism Management*, *51*, 1-12. https://doi.org/10.1016/j.tourman.2015.04.001

Sahni, J. (2017). Is strategic management practice important for small business enterprises? Evidence from Saudi Arabia. In K. S. Soliman (Ed.), *Education excellence and innovation management through Vision 2020* (pp. 3038-3052). Vienna, Austria: International Business Information Management Association.

Secretaria de Estado de Meio Ambiente, Desenvolvimento Econômico, Produção e Agricultura Familiar (2018). *Produto Interno Bruto dos Municípios de Mato Grosso do Sul – 2010-2016*. Campo Grande, MS, Brasil.

Secretaria de Estado de Meio Ambiente e Desenvolvimento Econômico (2016). *Perfil estatístico de Mato Grosso do Sul 2015*. Campo Grande, MS, Brasil.

Spee, P. A., & Jarzabkowski, P. (2009). Strategy tools as boundary objects. *Strategic Organization*, *7*(2), 223-232. https://doi.org/10.1177/1476127009102674

Stenfors, S., Tanner, L., & Haapalinna, I. (2004). Executive use of strategy tools: Building shared understanding through boundary objects. *Frontiers of E-Business Research*, 635-645.

Vorpagel, A. C. M., Hofer, E., & Sontag, A. G. (2017). Gestão de custos em pequenas propriedades rurais: Um estudo aplicado no município de Marechal Cândido Rondon – PR. *ABCustos*, *12*(2), 111-139.

Vuorinen, T., Hakala, H., Kohtamaki, M., & Uusitalo, K. (2018). Mapping the landscape of strategy tools: A review on strategy tools published in leading journals within the past 25 years. *Long Range Planning*, *51*(4), 586-605. https://doi.org/10.1016/j.lrp.2017.06.005

Webster, J. L., Reif, W. E., & Bracker, J. S. (1989). The manager's guide to strategic planning tools and techniques. *Strategy&Leadership*, *17*(6), 4-48. https://doi.org/10.1108/eb054273

Westgren, R. E., & Cook, M. L. (1986). Strategic management and planning. *Agribusiness*, *2*(4), 477-489. https://doi.org/10.1002/1520-6297(198624)2:4<477::AID-AGR2720020410>3.0.CO;2-X

Wit, B. (2017). *Strategy: An international perspective* (6th ed.). Winchester: Cengage Learning.

Wright, P., Kroll, M. J., & Parnell, J. (2000). *Administração estratégica: Conceitos*. São Paulo: Atlas.

Zanin, A., Oenning, V., Tres, N., Kruger, S. D., & Gubiani, C. A. (2014). Gestão das propriedades rurais do Oeste de Santa Catarina: As fragilidades da estrutura

organizacional e a necessidade do uso de controles contábeis. *Revista Catarinense da Ciência Contábil*, *13*(40), 9-19. https://doi.org/10.16930/2237-7662/rccc.v13n40p9-19