Perspectivas Contemporâneas
Revista eletrônica de Ciências Sociais Aplicadas
Centro Universitário Integrado
CAPES
ISSN: 1980-0193

KNOWLEDGE SHARING IN THE GRAIN PRODUCTION SECTOR

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ABSTRACT

Knowledge is one of the most critical assets in companies. Its correct management might bring several benefits and market competitiveness to organizations and their contributors. The present research aims to analyze the way that knowledge share works in the inter and intraorganizational mean in the productive grain chain at Campos de Cima da Serra region. The research was performed qualitatively in exploratory level, using the multiple case strategy, to which six semi-structured interviews were achieved, one for each link, starting from the input suppliers, the agricultural property, industry, wholesale, retail, and consumers. It was identified that within the organizations, the knowledge share is present in tacit and explicit form, and outside them, it is unwritten and informal. Thus, it was possible to observe that some of the employed practices used to spread knowledge are, in both cases, trainings, lectures, meetings, internet, research institutions, and mainly WhatsApp. We noted that despite the contributors and organizations understand the importance of sharing the knowledge, there still is some resistance in spreading it, due to the fear that the collaborator have of losing value inside the organization, and under other bias, the fear organizations have in sharing valuable information, losing competitive advantage.
Keywords: Knowledge share; grains; interorganizational; intra organizational.

RESUMO

O conhecimento é um dos ativos mais importantes das empresas, seu correto gerenciamento pode trazer diversos benefícios e competitividade de mercado para as organizações e seus colaboradores. O presente artigo tem como objetivo analisar a forma como ocorre o do compartilhamento do conhecimento no ambiente intraorganizacional e interorganizacional na cadeia produtiva do grão na região dos Campos de Cima da Serra. A pesquisa realizada é de natureza qualitativa e nível exploratório, tendo sido utilizada a estratégia de múltiplos casos, para a qual foram realizadas seis entrevistas semiestruturadas, sendo uma para cada elo, partindo do elo fornecedores de insumos, com sequência nos elos propriedade agrícola, indústria, comércio no atacado, comércio varejista e consumidores. Identificou-se que dentro das organizações o compartilhamento do conhecimento está presente na forma tácita e explicita, e fora dela é presente na forma tácita e informal. Com isso, foi possível observar que algumas das práticas utilizadas para disseminar o conhecimento nos dois casos, são: treinamentos, palestras, reuniões, internet, instituições de pesquisa e principalmente o WhatsApp. Como resultado, notou-se que apesar dos colaboradores e organizações entenderem a importância de se compartilhar o conhecimento, ainda existe resistência em disseminá-lo, dado ao medo do colaborador de perder valor dentro da

organização, e, sob outro viés, o receio das organizações de compartilhar informações valiosas, perdendo assim, a vantagem competitiva.
Palavras-chave: Compartilhamento do conhecimento; grãos; intraorganizacional; interorganizacional.

INTRODUÇÃO

The agribusiness sector is in constant development in Brazil; under this perspective, the knowledge might be treated as a strategic resource to companies. Thus, Brazil is one of the world's leaders in terms of agribusiness (CEPEA, 2016). According to Barros (2006), the agribusiness floats in internal and external cycles, alternating between moments of depression and euphoria.

There is a diverse climate in Brazil , regular rains, copious solar power, and almost 13% of all the freshwater reserves on the planet. Considering these factors, Brazil is a natural place for agribusiness (MAPA, 2005). This sector is vital to the economy of the country, and in 2017 it was responsible for 20% of the Gross Domestic Product (GDP) (PORTAL GLOBO, 2018). It also generates 37% of the total jobs in the country (PORTAL AVANTE BRASIL, 2016).

Independently from the market segment, and where the company is located, Davenport and Prusak (1998) stated that knowledge is one of the most valuable assets companies possess and at the same time, one of the most difficult to be managed. A process that belongs to knowledge management proposed by Nonaka and Takeuchi (1997) is the knowledge sharing, which deals with transferring good ideas (PAULIN; SUNESON, 2012). The knowledge sharing might occur inside the company and inter organizations (LIM; KLOBAS, 2000). According to Dyer and Nobeoka (2000) and Ahrmadjian (2008), this idea of inter-organizational knowledge sharing might feature in bilateral relations (e.g., company to company) and multilateral (e.g., company and associations), where the knowledge sharing might be tacit and explicit.

The region of Campos de Cima da Serra, located in the northeast in the Rio Grande do Sul state, has its economy based in primary sector activities. The differential sought by companies to become more competitive in the market might be found in the company through the correct management of its knowledge. Sveiby (1998) asserted that a critical attitude from companies is the proper transferring of knowledge present in the cells of the organization.

Facing the issue that has been exposed, its relevance is clear in understanding how knowledge sharing works intra and inter-organizational inside the agribusiness sector. Thus, the goal of this paper is to answer the question: how the share of knowledge happens in the grain production sector in the Campos de Cima da Serra region?

AGRIBUSINESS

Agribusiness is defined as the result of agricultural supplies operations of production and distribution , the yield of farming unities, the storage, processing, and distribution of agricultural products and items produced after them (DAVIS; GOLDBERG, 1957).

In 2014, the Rio Grande do Sul state added to 11.6% of the Gross Value Added (GVA) in Brazilian agriculture, being ranked

number 1 in the country (INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA, 2016). In the same year, the state's exports were destined to 198 countries, where China was the primary customer, totaling US$ 12.2 billion. Some studies suggest the product of agribusiness equals to almost ⅓ of the state's GDP (PORSSE, 2003).

PRODUCTIVE CHAIN

According to Zylbersztajn (1999), the concept of a productive chain is applied to a sequence of activities that transform a commodity in a final product, ready to be consumed by the customer. Morvan (1991) added, explaining that a productive chain might be understood as a sequence of processes that leads to the production of any goods. Its articulation is highly influenced by the possibilities brought by technology and defined by strategies from the agents that look for the increment of profits. The relations between agents have a complementary or interdependent nature and are determined by hierarchical forces. In different analytic levels, the chain is a self-reliant system capable of assuring its transformation.

Castro (2002) defined flow for the productive chain in agribusiness, where it is possible to trace the flux of an agricultural product. This particular chain contains: i) input suppliers; ii) the agricultural property; iii) industry; iv) wholesale; v) retail and; vi) the final consumer.

GRAIN PRODUCTIVE CHAIN

Soybean is an important source of vegetable protein. Thus, it is an essential component in the industry of animal ration. Besides this, the economic viability of soybean production enables its highlight among the sources of vegetable protein (MAPA, 2011).

Soybean crops are the primary source of Brazil's agribusiness. Its productive chain is essential to the internal market, according to Pinazza (2007). Over 130 million acres are producing (CONAB, 2013). In 2017, the exports totaled over US$ 96 billion, accounting for the leading exporting sector in the country (AGÊNCIA BRASIL, 2018).

In a model of agro-industry proposed by Zylbersztajn, Lazzarini, and Filho (1999), the relations between agents, actors, technological areas, materials, and economic ties are interlinked. The items found in this system are:

A. The industry of agricultural inputs produces commodities to industries that will yield to different production systems.

B. Agricultural production: agricultural segment, "back" (inputs industry) and "forth" (crushing industry), cooperatives, brokers, and storing.

C. Originators: composed by trading, cooperatives, brokers, storehouses, direct contact to the producers in the acquisition process, storing and distribution of soybean as raw material.

D. Crushing machines/refiners concentrates the soybean processing activities on its main products.

E. Distribution: Wholesale and retailers that work with other products that use the same distribution ways.

F. Final consumer: includes industries as customers in external sales and trading; processing industries.

KNOWLEDGE

Globalization changed the world by creating new organizational and social demands. Friedman (2006) and Ramos (2008) indicated that the model that valued physical effort, land, and capital was replaced by a

new reality in which industrialization emerged and displaced the importance of physical strength to the machines.

Knowledge might be defined as a collection of data that conveys any kind of value when gone through a contextualization process. The data is then inserted into different environments and filtered according to personal experiences, becoming a valuable form of information, granting its owners to master - theoretical or practically - any subject, art, science, or technique (NONAKA; TAKEUCHI, 1997; WHYTE, 2008).

Davenport and Prusak (1998) determined knowledge as a mix of several elements, where they might be found in an intuitive way and in a formally structured setting. The authors also indicated that knowledge cannot always be fully understood in logical terms, being inherent from the individual that owns it and belonging to the human unpredictability and complexity.

According to Nonaka and Takeuchi (1997), there are two ways knowledge can be represented: tacit and explicit. Tacit knowledge is about the person, difficult to be shared because it is based in two dimensions: technique (ability, know-how) and cognitive (mental models, personal values, beliefs, and experiences). Explicit knowledge is easily shared through documentation, meetings, and other communication channels.

Nonaka and Takeuchi (1997) also asserted that knowledge is created through what they defined as knowledge spiral. This model revolves around tacit and explicit knowledge. The model proposed by the authors consisted into four quadrants: i) socialization, where the interaction between individuals is the way of creating and sharing knowledge; ii) externalization, in which the tacit knowledge is enriched through the addition of technical details; iii) combination, where explicit knowledge is combined and codified and; iv) internalization, after that the repetition of documented processes tends to generate new knowledge.

Hence, Nonaka and Takeuchi (1997) concluded that the creation of knowledge is based on these conversion processes; it is due to them that explicit knowledge is formed from a tacit basis.

KNOWLEDGE SHARING

Grotto (2003) claims that knowledge sharing is the process of transferring both explicit and tacit knowledge through formal and informal means. Tonet (2006) portrays knowledge as one individual sharing what they know to people they work with and, at the same time, receiving instructions their co-workers own. It is then expected that the recipient absorbs shared knowledge.

In an organizational environment, knowledge sharing is a way to ensure the collaborators pass along the owned knowledge, granting its spread and acquisition, that they might employ in the future in similar situations. The ability a given company has in optimizing the expertise reusing, - which might be restricted to some individuals of area, where the others may face issued that could easily be solved with the present knowledge - is a competitive differential (TONET; PAZ, 2006).

Nonetheless, Cunha and Ferreira (2011) argued that there might be barriers in the organization's flow of knowledge. Kurtz et al. (2014) added that these barriers are associated with aspects of low reliability, low capacity of knowledge retention, reluctance in accepting, diminished capacity in

knowledge absorption, and the lack in sharing organizational practices and information in fear of losing space.

KNOWLEDGE SHARING MECHANISMS

Simon (1991) stated that knowledge and its spreading are grounded in two primary roots: people and technology. People are those who possess the experience, which is acquired through learning and when flows through companies, generates changes, leading in the teaching of the company itself. Technology is the mechanism employed to share knowledge.

Batista (2005) raised some practices that sought to identify the bracing mechanisms to knowledge sharing. These exercises are forums (virtual or presential), practicing communities, storytelling, mentoring, coaching, propagation of best practices, and collaborative tools.

Therefore, even if the formation of a culture that enables knowledge sharing, it is supposed the existence of opportunities regarding personal contact. The most crucial channel in transferring learning between people, within companies, is the one that promotes the encounters (CARVALHO, 2008).

INTRA AND INTER ORGANIZATIONAL KNOWLEDGE SHARING

The process permeating the sharing of knowledge happens in two distinct ways: Intra and inter-organizational. The first resembles the internal knowledge for the company in question. The company centers the information, both sender and receiver are inside the organization, and the sharing only occurs inside it. The inter-organizational way of sharing knowledge surpasses the boundaries of the company, thus being firms that share any similarity between them (JARVENPAA; STAPLES, 2001).

The need to obtain external knowledge, it might be explained by the reduced number of employees in a company (LIM; KOBLAS, 2000; DESOUZA et al. 2005). In this way, the inter-organizational knowledge sharing may contribute to the success of small companies.

Regardless the theories of intra and inter-organizational being treated separately (MARCH; SIMON, 1958; PFEFFER; SALANICK, 1978), it is important to consider the organization's necessity of learning, either with the experience from other companies or with the internal knowledge, formulated in the journey of the organization (LEVINTHAL; MARCH, 2003; OLSEN; PETERS, 1996; HOLMQVIST, 2003).

In studies performed by Dyer and Nobeoka (2000) and Ahrmadjian (2008), it was shown that there are two kinds of inter-organizational relationships in which companies might exchange knowledge. The first if a bilateral relation (company to company), and the second is the multilateral relation (a company exchanges knowledge between associations, universities).

KNOWLEDGE SHARING IN THE PRODUCTIVE CHAIN

The importance of knowledge in the productive chains is highlighted by Zylbersztajn (1999) when he claims the professionals linked to the food area (agronomists, veterinarians and food engineers) should dominate the knowledge since a partitioned view in the productive processes is not enough, the whole picture has got to be considered, and this view includes since the input production up to the final consumption.

The vast majority of agribusiness companies are small and depend on information and support from the government (LIM; KLOBAS, 2000;

DESOUZA et al. 2005). Casatoro and Filho (1999) state that the companies that act in a particular way, mainly the small and medium ones, will have their efforts reduced to stay within the market, and the authors suggested the insertion of these companies in cooperation networks.

In a study conducted by Faoro, Oliveira, and Abreu (2018) regarding knowledge sharing in the primary sector was concluded that sharing is already seen as a differential factor in companies. They identify the knowledge as one of the main assets of a company. Especially in the berries sector, knowledge is found tacitly, which makes much information to be lost, forgotten, or taken for granted. The authors also concluded that the sharing is not practiced in every link in the companies, where the collaborators realize the importance of sharing the knowledge but do not look for ways of spreading it.

Thus, Binotto, Nakayama, and Siqueira (2013) alleged that the practices from rural producers in capturing the knowledge are characterized as mere improvisation, grounded on tacit knowledge, and permeated by cultural aspects.

MATERIAL AND METHODS

This study was developed facing the research issue that was approached and sought to answer the general and specific objectives, thereby, a qualitative research was designed and did not consider numbers, but a better comprehension on a group or situation (GOLDENBERG, 1999). In this study, multiple cases were analyzed. All of them are inside the grain productive sector. Yin (2001) claims that one of the keys to ensure a successful multiple case study is the obedience of a replicative logic and not the sample itself.

The survey for supporting the contextualization in this study was performed in loco in an exploratory way. This form of inquiry provides better familiarity with the problem. To collect data, we applied the techniques: interviews, document analysis, and direct observation.

Our interviews were semi-structured and individually performed to the actors present in the grain productive chain. Each meeting lasted up to 15 minutes, was literally transcribed into textual documents. The questions asked in the interviews are included in Supplementary Materials S1. Upon these documents, we analyzed each one of the responses to fit them into the results segments of this study (inter-organizational knowledge sharing, intra organizational knowledge sharing and, knowledge sharing in the grain productive sector).

We analyzed each inquiry and organized the answers to follow a concise order. The questions were split to comprehend two different lines, one containing questions regarding the industry as a whole and questions about the knowledge sharing. Hence, we were able to analyze and read each one of the answers and link them to their segment in the industry.

MULTIPLE CASE STUDIES

The study was done with four companies that participate in the grain productive chain. Therefore, we opted to get representatives for the actors proposed in the model of Zylbersztajn, Lazzarini, and Filho (1999). The companies we selected are divided into: i) input supplier; ii) agricultural

property and industry; iii) retail and wholesale market and; iv) final consumer.

In this study, there was no statement from the directors of the companies. Thus, the results are based on the perception each interviewed has upon their company. Some managers have requested not to divulge the name of the companies. We opted to keep all the companies' names private. The companies and people that we interviewed will be identified following a pseudonym: E1: input supplier; E2: agricultural property; E3: industry; E4: wholesale market; E5: retail market and; E6: the final consumer. Table 1 depicts the main features presented by the companies and their interviewees. The companies in this study are referred to as links, due to each one representing one link in the grain productive chain.

Table 1 – Features from companies and their interviewees

Features Company/Employee	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**
School degree	Agronomist	Agronomist	w/out degree	Agronomist	Agronomist	w/out degree
Sex	Masculine	Masculine	Masculine	Masculine	Masculine	Masculine
Time in the company (year)	16	17	05	04	14	05
Current position	Seed technician	Grain production manager	Operational monitor	Sales	Sales manager	Sales
Time in the position (year)	01	17	04	04	14	08
Company lifetime (year)	60	25	25	14	14	35
Characterization of the company	Large	Small	Small	Small	Small	Medium
Number of employees	45	16	16	11	11	19

Source: Authors, (2019)

All the companies do not possess branches, and their headquarters are located in the city of Vacaria - RS. More information about the companies is available in Table 2.

Table 2 – Characterization of the six companies interviewed in this study*.

	E1	**E2**	**E3**	**E4**	**E5**	**E6**
Number of employees	45	16	16	11	11	19
Time in the market (years)	60	25	25	14	14	35
Revenue by year (approximately)	Over R$ 60 million	Over R$3.5 million	Over R$3.5 million	R$ 4.5 million	R$ 4.5 million	R$ 6 million

* E2/E3 and, E4/E5 are the same companies. We visited E2/E3 to follow the process of input, drying and, output of the product. The company also granted us access to internal processes to track where the knowledge share would fit.

RESULTS AND DISCUSSION

The results and discussion section in this study is organized in a way that the first part indicates the obtained results concerning intra organizational knowledge sharing. The second approach is the inter-corporate knowledge sharing. The last part conveys a general discussion regarding knowledge sharing.

INTRA ORGANIZATIONAL KNOWLEDGE SHARING

It was observed that all companies are used to spread the knowledge among their employees, presenting an environment where sharing is favored, and the final consumer is considered. Anghinoni (2005) manifests that learning is a tool for companies. Thus being, the statements from E1 and E2 are highlighted, when questioned if the company they work is used to promote techniques that integrate the other employees:

> "The company organizes some training to share the knowledge, but each department with their own interests" (Seed technician)

> "Yes, frequently, the final goal, though we do not have contact, is the customer, so there is a lot of practice that departs from this interaction with employees from the producer link, minding the last link, which is the consumer" (Grain production manager).

According to Cunha and Ferreira (2011), some factors smoothen the success in knowledge sharing. Examples are the right selection of coordinators and participants of the teams in question; support from the company, visits, meetings, and other socializing activities tend to motivate the participants and support the development of trust networks between the teams. Facing this, E2 stated that they document the information and passes it along the employees:

> "With the arrival of WhatsApp, things have become easier. I am responsible for seeking this knowledge and applying it to the project and then spreading it. Previously, we collected the information and formalized everything via e-mail, for those who had access; for those who did not, we had a meeting with the collaborators and passed along the most important items" (Grain production manager)

Regarding the knowledge sharing among employees within the organization, it happens in tacit and explicit forms, it is mainly transmitted through socialization in meetings, training, and informal conversations between the employees. Nonaka and Takeuchi (1994) and Takeuchi (1995) asserted that socialization is a way of creating knowledge, and it seeks the conversion of tacit knowledge by the interaction between individuals. E1, E3, and E4 explained this interaction.

> "In lectures, word of mouth talk, everything is informal indeed." (Seed technician)

> "Through internal training, exchange of information in practices, a lot of experiences are exchanged." (Sales)

> "In meetings, training, and WhatsApp groups." (Operational monitor)

Table 3 shows the mechanisms for knowledge sharing employed in the companies, where X(E) is explicit knowledge, and X(T) indicates tacit knowledge.

Table 3 - Mechanisms for knowledge sharing within the organization.

Mechanisms	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**	**TOTAL**
Training	X(E)			X(E)	X(E)		**3**
Lectures	X(T)						**1**
WhatsApp	X(T)	X(T)	X(T)	X(T)	X(T)	X(T)	**6**
E-mail		X(T)	X(T)				**2**
Meetings			X(T)		X(T)	X(T)	**3**
Teamwork				X(T)	X(T)	X(T)	**3**
Total	**3**	**2**	**3**	**3**	**4**	**3**	

Source: Authors (2019)

It is possible to observe that the unanimity in Table 3, used by every link, is WhatsApp, followed by training, meetings, and teamwork, counting three votes and placing them as the second most used mechanism. The least utilized are lectures and e-mail, respectively.

E5 is the link the uses the most mechanisms to share their knowledge, totaling four. Links E1, E3, E4, and E6 all use the same number of tools, three each. The link that uses the lowest amount is E2.

Following Cheng, Yeh, and Tu (2008), trust is the basis for knowledge sharing to happen and solidify itself among the team, which enables the sharing to be redistributed by both parts - source and destination. Thus, it is possible to state that the teamwork performed by E4, E5, and E6 is a way to spontaneously shares the knowledge based on the level of confidence among the parts.

INTER ORGANIZATIONAL KNOWLEDGE SHARING

In regard to the knowledge sharing between companies, meaning that they spread knowledge amongst a chain, only links E3 and E6 do not share with others, when questioned, only E6 longed to answer:

> "We do not share, we are the final consumers, so our suppliers must bring us information regarding the product that we are buying and the market trends." (Manager)

In companies that promote open events for their customers and employees to engage in, where lectures are given on the current issues on the area, and some practical workshops are performed, where everyone can join, E1 states:

> "We perform lectures to our collaborators to inform them about the current customers' issues. We always try to organize workshops to illustrate what we want to transmit." (Agronomist)

Between this and that, in the companies that do not promote knowledge, it is possible to notice that when the interaction happens between the links, it happens tacitly, happening through meetings and WhatsApp, without formalizing and documenting the information exchange, E2 and E4 reported:

> "It is the profile of the owner not to retain information, the idea is never to hold information, the more we can share, we believe that it is possible to receive information we do not have, the way we do that is via WhatsApp

> groups, and this belongs to the profile of those who undertake." (Grain production manager)
>
> "It is by organizing meetings among the people that we relate to exchange information, always considering to benefit our customer." (Sales).

Concerning the usage of external sources of knowledge, links E2 and E6 are the ones that seek to learn among other institutions such as EMBRAPA (Empresa Brasileira de Pesquisa Agropecuaria - Brazilian Company of Agricultural Research), Universities and events promoted by the suppliers, the following quotes illustrate their statements:

> "We get a lot of information and knowledge from our suppliers, they bring us, and we always try to keep up." (Manager)
>
> "We look for information in external sources, such as EMBRAPA, public Universities and research institutes that do not have any connection with other links in the chain, then, we trust that they view the whole chain concerning sharing the information and it is not biased." (Grain production manager)
>
> "Technical knowledge to the production and commercialization." (Operational monitor)
>
> "Technical and knowledge about new products are shared, always seeking the best for our consumer, and they can be benefitted." (Sales)
>
> "We exchange market knowledge, but mainly the technical, in a way we are always moving in the same way, aiming the needs from the customers." (Sales manager)
>
> "Market and product information, always trying to understand what is more viable and newer to us." (Manager)

Table 4 depicts the mechanisms for the links to interact with external knowledge sources, as it was portrayed by Lim and Klobas (2000).

Table 4 - Knowledge sharing mechanisms among organizations.

Mechanisms	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**	**TOTAL**
External training			X	X	X		**3**
Universities		X					**1**
Associations		X					**1**
Suppliers	X						**1**
Internet, Apps	X	X	X	X	X	X	**6**
Research institutes		X					**1**
Fairs				X			**1**
Total	**2**	**4**	**2**	**3**	**2**	**1**	

Source: Authors (2019)

Table 4 illustrates that all links had a consensus regarding the usage of external sources of knowledge. The internet and apps are the most used mechanisms. The second most used is external training, E3, E4, and E5 justify:

> "WhatsApp is the one the mostly spreads information, also there are reports from which we get information from." (Operational monitor)

> "Through external training, or sometimes a supplier giving us information about something technical." (Sales)

> "We use WhatsApp a lot. It is our main source of external information. I can say that this is also our main way of spreading knowledge." (Sales manager)

It was also quoted by the links the Universities, association in which the companies belong to, the suppliers, research institutes, and fairs, each one of them with one vote. When questioned about the reason for choosing a specific mechanism to search and share knowledge, the links had an agreement, stating that they are from the agricultural area, and their focus is not technology.

According to Neto (2012), the rural producer is the least informed in all chains. They do not possess a class entity that they might resort to and exchange information. Then, they chose WhatsApp as a general tool to share knowledge, justifying that the app is simple, practical, and easy to use. This particular mechanism fits their reality and provides security for the information flow. E1 and E2 mentioned:

> "Simplicity, the simpler, the better, that's why we chose WhatsApp because we are a company in the agricultural business. We do not have that much access to technology." (Seed technician)

> "What we believe is that everything that is simple is also functional; using WhatsApp is in our routine and covers all sectors and the hierarchy in the company. For example, a training that has high investment is selected by only a few people to realize. Then, the knowledge is passed to the others. Not saying that the other mechanisms are not important, but we end up choosing the easier one to live in our reality." (Grain production manager)

Lastly, it is noted that E2 is the one that mostly uses mechanisms to induct sharing and capturing knowledge from external sources. For it is the agricultural property representative, where planting is performed, this report confirms this finding:

> "We believe that this is the most important sector within the whole chain, it is here where we crop the product, so we seek to be always up to date, seeking and sharing information." (Grain production manager)

KNOWLEDGE SHARING IN THE GRAIN PRODUCTION SECTOR

All the interviewees understand the importance of sharing information; in general, it might be said that the knowledge in the grain productive chain in the Campos de Cima da Serra Region is present in tacit form.

It is possible to see that everyone inside an organization spreads the knowledge, some restrictions need to be considered regarding losing value within the company, but it was clear that the intra

organizational knowledge sharing is present explicit and tacitly.

Still, from inside the company, this study indicated that none of the interviewed companies document and formalize their processes seeking to retain the knowledge and facilitate the replacement of their collaborators.

At the same time, when the knowledge is shared between organizations, there is a specific resistance, due to the interviewees understand that their experience is a differential. In a competitive market, knowledge boosts the companies, and so, it is strategic to retain information. In these means, E4 reported:

> "We try to hand on relevant information to our sector, but in a filtered way, we understand that information is like a mine, but in the same way, we get a lot of halves, we filter what we pass along. "(Sales)

Figure 1 illustrates the knowledge flow, showing the inter-organizational interaction that happens in the grain productive chain.

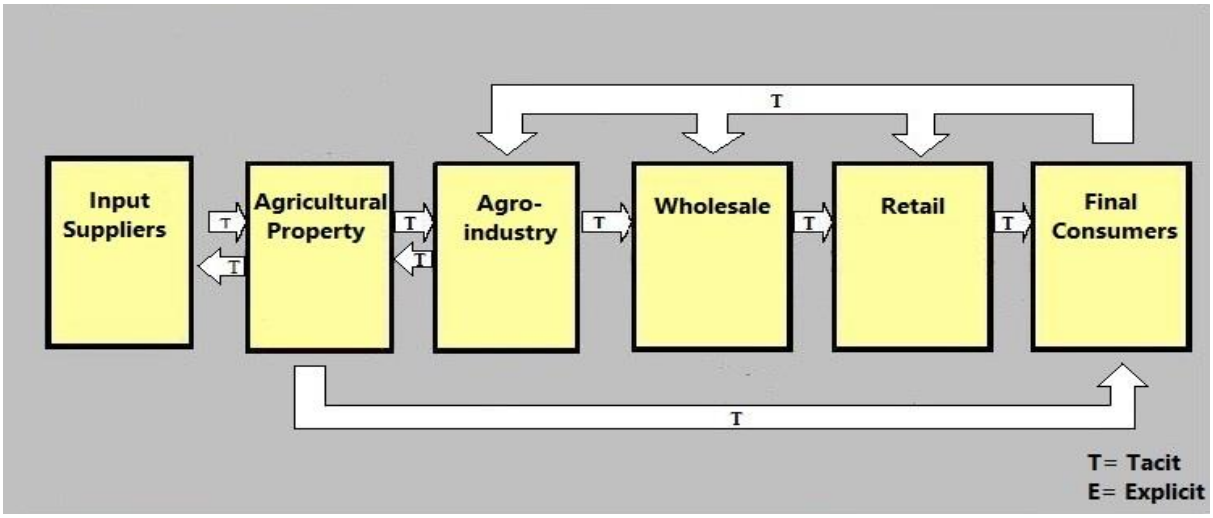

Figure 1 - knowledge flow in the grain productive sector

Figure 1 has shown two flows of relationships; in both cases, the sharing occurs tacitly. In other words, the organizations involved in the grain production chain do not possess a formal way to transmit information between the links. Nonaka and Takeuchi (1997) defined this interaction as socialization, where undocumented knowledge generates more undocumented knowledge. We understand the commodities sector as primary industry; hence, it is subject to a less formal way to transmit knowledge between actors (Neto, 2012). The first flow starts in the input suppliers and goes until the final consumer, systematically. The second flow does not happen like this. It means the agricultural property also interacts with the final consumer, and the consumer interacts with the wholesale and agro-industry. E3 and E5 reported how these relationships happen:

> "Through visits, training, and groups on WhatsApp." (Operational monitor)

> "It happens through visiting customers, conversations, and

> meeting and via phone contact." (Sales manager)

From inside the chain, the input supplier is the only one that relates to a single link, the agricultural property. The others interact between themselves. None of the companies presented any investment or troubles from the managers to the sharing and retention mechanisms. It was also possible to investigate that none of the companies adopted a way to convert their knowledge concerning the externalization process, which turns tacit knowledge into explicit.

FINAL CONSIDERATIONS

This paper aimed to perform a study in the grain productive chain, relating the knowledge concepts and its mechanisms, so the way the companies manage and share their knowledge could be assessed.

Thus, it was possible to observe the organizations understand the knowledge is a strategic resource and extremely important. Despite the knowledge being present in tacit form within the grain productive chain, it was noted that, gradually, these companies are acknowledging the importance of management and sharing their knowledge. While there is recognition, the companies understand that for turning these concepts practical, it is more complicated.

Therefore, the intra organizational knowledge is present tacitly and explicitly, where half of the interviewees include explicit mechanisms in their training, documenting the information to ease its sharing. In tacit terms, the other half shares the knowledge informally.

In regard to the inter-organizational knowledge, which is knowledge from outside the companies, where this interaction might happen bi or multilaterally, all companies indicated to spread their expertise in tacit form, where it is difficult to be documented and formalized. It was also possible to infer that the initiative to share departs from external sources within the chain; in other words, the information is generated in research institutions, colleges, and public offices. The companies themselves did not show interest in spreading the knowledge they receive, breaking this sharing cycle.

Furthermore, intra and inter-organization knowledge sharing would benefit the companies in becoming more competitive. Yet, it was noted that there is some resistance in sharing the knowledge in this particular sector since the collaborator understands that retaining information means having more value inside their company. From the organization's point of view, owning information on a new product or market trends means being one step further from the competition.

The presentation of knowledge sharing in this paper indicates the existence of a situation that might interfere with the knowledge flow. This way, it is possible to conclude that, in terms of organizational strategy, the spreading of knowledge is not marked by a main preoccupation in the productive chain, but by forces found in the operational activities in the companies. Proper management of these situations might stimulate knowledge sharing in and outside the chain, consequently improving the figures from the organization.

Lastly, it is recommended that this study has continuity, where new results might be gathered from other regions in the state and other locations in the country. It is also possible to perform a quantitative study, considering companies from the same productive chain, and a framework might be developed to aid the sharing process.

From our results, we believe that the achievement of structural sharing of knowledge might deliver to the commodities exploring companies a better set to act in the global world.

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Enviado: 23/08/2019
Aceito: 03/07/2020