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**WATER PROTECTOR PROJECT FOR PAYMENT FOR ECOSYSTEM SERVICES (PES)
OF VERA CRUZ, RS: ANALYSIS OF THE MOTIVATIONS AND PERCEPTIONS OF
PARTICIPATING LANDOWNERS**

**PROJETO PROTETOR DAS ÁGUAS POR PAGAMENTO POR SERVIÇOS
AMBIENTAIS (PSA) DE VERA CRUZ, RS: ANÁLISE DAS MOTIVAÇÕES E
PERCEPÇÕES DOS PROPRIETÁRIOS DE TERRA PARTICIPANTES**

Porto Alegre, 2020

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ABSTRACT

As a result of the decrease in the quantity and quality of water and the difficulties to reduce its degradation in rural areas, government agencies and institutions have developed and implemented policies for Payment for Ecosystem Services (PES) related to the conservation of water resources. The Vera Cruz / RS Water Protector Project, which started in 2011, is the first Brazilian project fully funded by the private sector. Through payments to rural landowners, through a voluntary transaction, it guarantees the provision of environmental services aimed at improving water resources. Currently, with 63 active participants, very little is known about the profile of these rural landowners. Therefore, this study had as main objective to analyze the personal and demographic characteristics of the landowners and their rural properties that adhered to the “Water Protector Project” of Vera Cruz / RS. Structured and face-to-face interviews were conducted with 39 active participants, thus making it possible to trace the socioeconomic, situational and attitude and behavior profile of the landowners of this project. As a conceptual basis, Neoclassical Environmental Economics was chosen as a reference in this research, based on the Coase Theorem. The data analysis allowed us to conclude that they are small rural families, most of them are adults, and work in agriculture for life. As most participants produce or have produced tobacco, they are open to new changes or innovations and have a high environmental responsibility. As the vast majority of participants have lived in this region for many generations, there is high social connectivity and confidence in government. Therefore, these two variables are the ones that most influence the participation of landowners in the project.

KEYWORDS: Water Resources Management; Water Conservation; Ecosystem Service.

RESUMO

Em decorrência da queda da quantidade e qualidade de água e das dificuldades para reduzir sua degradação em áreas rurais, órgãos governamentais e instituições têm elaborado e implementado políticas de Pagamento por Serviços Ambientais (PSA) relacionadas à conservação dos recursos hídricos. O Projeto Protetor das Águas de Vera Cruz/RS, que iniciou em 2011, é o primeiro projeto brasileiro totalmente financiado pela iniciativa privada. Através de pagamentos para proprietários rurais, através de uma transação voluntária, o mesmo garante o fornecimento de serviços ambientais visando a melhoria dos recursos hídricos. Atualmente com 63 participantes ativos, muito pouco se sabe sobre o perfil destes proprietários rurais. Portanto, este estudo teve como principal objetivo analisar as características pessoais e demográficas dos proprietários de terras e suas propriedades rurais que aderiram ao “Projeto Protetor das Águas” de Vera Cruz / RS. Foram realizadas entrevistas estruturadas e presenciais com 39 participantes ativos possibilitando, assim, traçar o perfil socioeconômico, situacional e de atitude e comportamento dos proprietários de terra deste projeto. Como base conceitual a Economia Ambiental Neoclássica foi escolhida como referência, baseada no Teorema de Coase. A análise de dados permitiu concluir que são pequenas famílias rurais, em sua maioria adultos e trabalham com agricultura a vida toda. Como grande parte dos participantes produz ou já produziu tabaco, eles estão abertos a novas mudanças ou inovações e têm uma alta responsabilidade ambiental. Como a grande maioria dos participantes reside nesta região a muitas gerações, existe uma conectividade social e elevada confiança no governo. Portanto, estas duas variáveis são as que mais influenciam a participação dos proprietários de terra no projeto.

PALAVRAS-CHAVES: Gestão de Recursos Hídricos; Conservação de Água; Serviço Ecológico.

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1 INTRODUCTION

Agriculture is an important economic activity for the country's economy; it is a form of income for many families and, as it always has been. It is a source of food and resources. According to the Food and Agriculture Organization of the United Nations (OCDE/FAO, 2015), nine out of ten of the world's 570 million farms are managed by households. Most countries have an economy that is dependent on agriculture - either in a small or big way - from employment generation to National Income (FAO, 2011).

Agriculture as a concept has also grown. A decade or two ago, it was associated only with the production of basic crops. Modern agriculture includes forestry, beekeeping, fruit growing, poultry farming, and dairy farming, among many others. Brazil is known worldwide for the significant production of fruit and for being one of the largest producers in agriculture. Currently, the country is the third largest fruit producer in the world with an estimated production of 37.6 million tons, and is behind only China and India (OCDE/FAO, 2015).

Along with the growth of agriculture, there is also a growing concern for the environment and its preservation. When there is no compatibility of interests between agricultural production and environmental conservation, there are conflicting situations. Therefore, if there is a growing demand for environmental services, on the other hand, there is an infeasibility of these services to regenerate in such demand.

Consequently, agriculture changes are necessary for the recovery of degraded areas in order to make the area suitable for new sustainable use. Agriculture must be practiced with natural resource management techniques that contribute to the conservation of the environment; in other words, agriculture must not contribute to soil degradation and avoid accelerated erosion and contamination of soil and water. So, problems to reconcile agricultural production and environmental preservation exist; but they must be resolved through fair public policies. Subsequently, this new agriculture approach is often incorporated into political agendas and debates in civil society.

Amid topics considered relevant in the discussion agenda are sustainable agriculture and ecosystem services, which is, the benefits people obtain from ecosystems (MEA, 2005). However, human activities have been impacting and degrading these services. The need to revert this degradation is a major global challenge (MEA, 2005).

Among all of the ES, those related to water are among the most important for human well-being (DE GROOT *et al.*, 2010). Water is considered in Brazilian law, as being a good of 'all', and of each indistinctly (BRASIL, 1997). One of the main values attributed to water

corresponds to its function of sustaining all life forms on the planet. The importance and the essentiality of water are undeniable, in terms of both quality and quantity, especially considering that it is a finite resource, indispensable to human survival.

Ecosystems associated with water resources provide a range of environmental services, such as water and food supply, regulation of water flow and infiltration, drainage and natural irrigation, flood protection, soil retention and prevention of erosion and sedimentation, protection against salinization of aquifers. Therefore, these services are of great importance to guarantee agricultural productivity (DE GROOT; WILSON; BOUMANS, 2002). However, over the past 50 years, ecosystem services that have been degraded include water supply, waste treatment and detoxification, water purification and natural hazard protection (MEA, 2005).

Nevertheless, when agricultural practices are located in ecologically fragile areas, such as slopes and springs, bring different impacts to the quality and availability of the water resources of that basin. Consequently, water is a necessary multiple and irreplaceable good in the most diverse economic segments, among them: agriculture, industry, commerce, services, tourism, leisure, fishing, navigation (TEIXEIRA, 2011).

Among the attitudes that seek to promote the conservation of ecosystem services, there is an environmental valuation instruments called Payments for Ecosystem Services (PES). PES is a “voluntary transactions between service users and service providers that are conditional on agreed rules of natural resource management for generating offsite services” (WUNDER, p.241, 2015). The potential of PES in rural areas is related to the possibility of being able to produce agronomic practices that are able to protect the proper functioning of ecosystem services and, thus, ensure the productive basis of long-term food security for local communities (FAO, 2011).

In this sense, the number of PES initiatives in Brazil and worldwide has increased (FAO, 2011; FENG *et al.*, 2018; PEREIRA; ALVES SOBRINHO, 2017). Therefore, further studies on the subject in general are necessary. Even though the amount and diversity of publications on PES schemes worldwide has increased, these researches focus on environmental and economic results, as well as the role of government or other institutions within these projects (ZANELLA; SCHLEYER; SPEELMAN, 2014). As a consequence, people's motivation to join these projects has not been a concern in the literature in general. Thus, the profile of the participants in each of the existing initiatives is necessary to understand how adherence is taking place. “Low levels of participation can reduce the ability

of programs to achieve their desired outcomes, as well as reduce their efficiency” (MORRISON *et al.*, 2008, p. 77).

Therefore, the aim of this research is to analyze the personal and demographic characteristics of the landholders and their rural properties that joined the ‘Water Protector Project of Vera Cruz / RS’. The relevance of the proposed theme is justified in its importance in building the profile of the participants to understand how adherence occurs. Consequently, by tracing the socioeconomic profile of the participants, the chances of success increase. Hence Neoclassical Environmental Economics was chosen as reference in this research, mainly using Coase Theorem (1960).

This dissertation is structured in chapters; the introduction is the first chapter. The second chapter is the literature review in which it is divided into three parts. Firstly, the concept of ecosystem services is addressed. The second part refers to payment for ecosystem services (PES), as well as their contextualization and approaches. The third part refers to the National Water Agency (ANA), as well as the Water Producer Program in Brazil.

The third chapter refers to the methodological procedures, divided into 5 parts: research design, study area, sample design, data collection, and data analysis. Therefore, this section presents the description of the methods used in this research.

The fourth chapter presents the results of this methodological application, divided into 3 parts. The first part seeks to answer the first specific objective of the research, which is to describe the ‘Water Protector Project of Vera Cruz / RS’. The second part seeks to answer the second specific objective, which is to describe the socioeconomic and situational characteristics of the landowners participating in the ‘Water Protector Project of Vera Cruz / RS’ and their rural properties. And the last part seeks to answer the third and last specific objective, which is to identify attitude and behavior variables such as trust, satisfaction, profit focus, environmental responsibility, innovator, business orientation, information seeker, and connectedness of the landowners participating in the ‘Water Protector Project of Vera Cruz / RS’.

Finally, chapter five, the final considerations of the research are presented in view of the results achieved (chapter 4) and the recommendations for future researches.

According to the content presented, seeking to settle in to the work themes developed in the Graduate Program in Agribusiness, this study is linked to the line of research entitled “Bioeconomics, ecosystem services and sustainability” of the Center for Studies and Research in Agribusiness (CEPAN) of the Federal University of Rio Grande do Sul (UFRGS), as it addresses themes of anthropogenic relations and natural resources in agribusiness.

2 LITERATURE REVIEW

In the sequence will be presented the literature review, divided into: Ecosystem services, Payment for ecosystem services (PES): Water Resources and National Water Agency (ANA – *Agência Nacional de Águas*) through the Water Producer Program (*Programa Produtor de Água*).

2.1 ECOSYSTEM SERVICES

Ecosystem services (ES) have several definitions in the literature, the most used is the Millennium Ecosystem Assessment (MEA, 2005), a seminal report in this field published in 2005 based upon the work of over 1,300 international scientists, where it characterizes ecosystem goods and services or environmental services as the benefits people derive from ecosystems. Proposed worldwide by the UN Secretary-General in June 2001, MEA aimed to assess the consequences of changes in ecosystems for human well-being; and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being (MEA, 2005).

MEA (2005) assessed the impacts of human activities on the environment and identified that ecosystem services at the global level are declining, which can have a major negative impact on human well-being in the future. This work explicitly adopts the concept used by MEA (2005).

Different concepts to define ecosystem services are used, for De Groot; Wilson; Boumans (2002) ecosystem services are natural processes that ensure the survival of species on the planet and have the capacity to provide goods and services that meet human needs. For Haines-Young; Potschin (2013) ecosystem services are the contributions of ecosystems (natural or modified) that directly or indirectly affect human well-being. For Munk (2015) ecosystem services are defined as socially relevant benefits generated by ecosystems and environmental services are those that can favor the maintenance, recovery or enhancement of these benefits.

For a better understanding, MEA (2005) classifies ecosystem services into four categories: Provision (products obtained from ecosystems; e.g. food, fresh water, wood and fiber, and fuel), Regulation (benefits obtained from regulation of ecosystem processes; e.g. climate regulation, flood regulation, disease regulation, and water purification), Culture (nonmaterial benefits obtained from ecosystem; e.g. aesthetic, spiritual, educational, and

recreational) and Support (services necessary for the production of all other ecosystem services; e.g. nutrient cycling, soil formation, and primary production).

The Common International Classification of Ecosystem Services (CICES) is widely used for mapping, ecosystem assessment, and natural capital ecosystem accounting. CICES highlights in its report that there is a difference between ecosystem services and benefits, and this terminological correlation is very common, but not correct. Therefore, for CICES, ecosystem services are:

ES are the contributions that ecosystems make to human well-being. These services are final in that they are the outputs of ecosystems (whether natural, semi-natural or artificial) that most directly affect the well-being of people. A fundamental characteristic is that they retain a connection to the underlying ecosystem functions, processes and structures that generate them (HAINES-YOUNG; POTSCHIN, 2013, p.9).

Currently, the Common International Classification of Ecosystem Services (CICES) uses three categories: Provisioning (all nutritional, material and energetic outputs from living system; e.g. biomass, water, fiber, and mechanical energy), Regulation & Maintenance (covers all the ways in which living organisms can mediate or moderate the ambient environment that affects human performance; e.g. mediation by biota and ecosystems, mass, gaseous and liquid flows, pest and disease control, water conditions, and climate regulation) and Cultural (covers all the non-material, and normally non-consumptive, outputs of ecosystems that affect physical and mental states of people; e.g. physical and experiential interactions, intellectual and representational interactions, and spiritual) (HAINES-YOUNG; POTSCHIN, 2013).

According to Andrade *et al.*, (2012), ecosystem services are important for economic activities and for agriculture because they provide the necessary resources for the production of economic goods and services and the sustainability of human activities.

2.2 PAYMENT FOR ECOSYSTEM SERVICES (PES): WATER RESOURCES

The concern of the society with the environment, and the concern of the quality and availability of natural resources have increased. As a result environmental valuation instruments, such as Payments for Ecosystem Services (PES), are gaining attention and the number of projects have increased over the last few years (ZANELLA; SCHLEYER; SPEELMAN, 2014).

This increasing number of initiatives demonstrates their relevance in seeking to repair some of the negative externalities of the current form of production and consumption, externalities represented by environmental pollution and the degradation of available environmental services (SHIKI; FARIA; SHIKI, 2011).

It is important to note that this discussion started with Arthur Cecil Pigou (1877-1969); Pigouvian tax requires that those who create negative externalities should pay for the damage they cause and consist of internalizing externalities, which can be an environmental damage (ANDRADE *et al.*, 2012; WERTZ-KANOUNNIKOFF, 2006).

PES principles are theoretically based on Neoclassical Environmental Economics - based on the Coase Theorem (1960) with the aim of minimizing or correcting impacts on ecosystem services, contributing to obtaining economic efficiency by internalizing positive externalities via monetary payments (GODOY, 2011; SCHOMERS; MATZDORF, 2013; WUNDER, 2005).

Coase's theorem holds that externalities do not cause the imperfect allocation of resources, as long as transaction costs are nil, and property rights, well defined and respected. Therefore, the actors (the producer and the consumer of externality) would have a market incentive to negotiate an agreement for mutual benefit, in such a way that the externality was "internalized" (ANDRADE *et al.*, 2012; GRIMA *et al.*, 2016; PAGIOLA; ARCENAS; PLATAIS, 2005; SCHOMERS; MATZDORF, 2013; ZYLBERSZTAJN; SZTAJN, 2002).

Externalities can be identified when an actor's action affects the other's well-being or gain, but without any market mechanism that compensates those affected. Externalities can be negative or positive. The positive ones are worthy of incentives and subsidies so it continues to perpetuate itself. Negatives, on the other hand, generate burdens on the actors, the environment, among others (SOARES; SILVA; TORREZAN, 2015).

According to some views, PES is an economic instrument that tries to stimulate the protection of ecosystem services and to minimize the current management failure (which does not consider the value of an ecosystem service) through a new market (WUNDER, 2015). Proponents for valuing ecosystem services believe that valuing ecosystem services can improve understanding of problems and trade-offs, thus estimating the importance of various ecosystems. "PES have attracted increasing interest as a mechanism to translate external, non-market values of the environment into real financial incentives for local actors to provide such services" (ENGEL; PAGIOLA; WUNDER, 2008, p.664).

In 2005, Wunder characterized PES (five criteria) as a voluntary transaction in which a well-defined environmental service or land use that provides that service is being "bought"

by a service buyer from a service provider, if the service provider ensures the provision of services (conditionality). In 2015, Wunder redefines PES concept as a “voluntary transactions between service users and service providers that are conditional on agreed rules of natural resource management for generating offsite services” (WUNDER, 2015, p.241). This concept is used in this work.

PES systems have been used as a form of incentive and motivation for the protection and sustainable use of biodiversity and natural resources; using economic incentive instruments for the sustainable management of ecosystems. This class of compensation policy aims to recognize the agent who sacrifices part of his income for conservation of the nature (ANDRADE *et al.*, 2012) and contribute to the preservation of nature and sustainable development (MORAES, 2012).

Consequently PES has the role of restoring environmental services where they have already been lost, but it also can avoid deforestation and the consequent loss of environmental services (FAO, 2011; PAGIOLA; ARCENAS; PLATAIS, 2005).

Moraes (2012) comments that PES scheme is a mechanism that establishes and sustains a financial link between potential buyers and environmental services suppliers, under contracts and conditions that guarantee that these suppliers will adopt the practices of conservation and/or restoration of ecosystems.

For Scheufele; Bennett (2017) PES scheme design and implementation can be seen as an attempt to mimic market processes such that an exchange of environmental services becomes beneficial for both buyers and suppliers. Wunder (2005) recognizes payments for ecosystems services are part of a new and more direct conservation paradigm, explicitly recognizing the need to bridge the interests of landowners and outsiders.

Through the Protector-Receiver Principle, premise in which an individual (a rural producer) who voluntarily decides to participate in a PES project and assumes responsibility for preserving nature for a greater good, indirectly has a financial loss. Consequently it creates a disadvantage in economic competitiveness (DELEVATI *et al.*, 2018; MORAES, 2012).

In consequence, PES schemes provide or reduce these eventual financial losses. In other words, through the opportunity costs and maintenance of environmental services, the providers of these services (example water preservation) receive financial incentives from the beneficiaries and users of this environmental service. The Protector-Receiver principle has been recognized as more efficient and effective in controlling environmental damage (DELEVATI *et al.*, 2018; MORAES, 2012; OUVENEY *et al.*, 2017; SHIKI; FARIA; SHIKI, 2011).

Thus PES recognizes the value of these environmental services and rewards those who help conserve them (WUNDER, 2015). Therefore, PES works with the recovery, maintenance and improvement of ecosystems that generate environmental services. Even though it sounds simple to accomplish, it is a complicated process and each project is unique. The process of implementing a PES project ranges from the mapping of springs, the search for finance to farmers' adherence, so it is a long and meticulous process (ZANELLA; SCHLEYER; SPEELMAN, 2014).

Smith *et al.*, (2013) declares the design and implementation of a PES scheme can be divided into five broad phases: identifying a saleable ecosystem service and prospecting buyers and sellers, establishing PES scheme principles and resolving technical issues, negotiating and implementing agreements, monitoring, evaluating and reviewing implementation, and finally, considering opportunities for multiple-benefit PES. The funders of a PES programs are diverse, from public and private companies, government, non-governmental organizations, and foundations, among many (SMITH *et al.*, 2013).

Muradian *et al.* (2010) points out that before implementing a PES program it is important to verify the political, environmental, cultural and socioeconomic context in which the instrument is intended to be applied, because it is expected that PES programs will also impact on local economies (ENGEL; PAGIOLA; WUNDER, 2008). This includes verifying the causes of ecosystem loss and degradation and thus assessing whether PES, among other solutions, is a potential instrument for the conservation of that ecosystem (SMITH *et al.*, 2013).

2.2.1 *An approach to PES*

PES is being implemented in different regions around the world, from the pioneering national program in Costa Rica started in 1997, to Latin America and Europa, to land conversion in China and watershed health in the United States, and different types of PES programs in different areas of Australia and amongst many others (ENGEL; PAGIOLA; WUNDER, 2008; FAO, 2011; MURADIAN *et al.*, 2010; PAGIOLA; GLEHN; TAFFARELLO, 2013b; PEREIRA; ALVES SOBRINHO, 2017).

Among these programs, it is important to highlight the water resources PES. In 2016, Grima *et al.* evaluated the cases of PES in Latin America and half of the 40 cases evaluated focused on hydrological environmental services. The same occurred in Naeem *et al.* (2015)

research. The authors analyzed 118 active PES programs and 42 schemes were water PES. And in Brazil, this reality is also true (PAGIOLA; GLEHN; TAFFARELLO, 2013a).

The number and diversity of publications on PES cases worldwide are growing and the search for the improvement of these types of schemes is constant. The existing studies of PES are predominantly focused on how a PES mechanism works, how to assess the environmental and social impacts of implemented PES schemes (FENG *et al.*, 2018).

To encourage participation in these programs, several authors have researched the socioeconomic and situational profile of current participants. Some authors went further and researched attitudinal and behavioral variables that would influence participation or not, as Ouverney *et al.* (2017) and Zanella; Schleyer; Speelman (2014).

In 2008, Morrison *et al.* analyzed market basement instruments and incentive programs in Australia, the authors developed an approach to characterize PES participants. A mixed methods research design was used for their project (literature review, qualitative research which included expert interviews and focus groups, and a quantitative survey of about 6000 landholders).

This study will work with the concepts of attitude and behavior variables contextualized by Morrison *et al.*, the variables are trust, satisfaction, profit focus, environmental responsibility, innovator, business orientation, information seeker, and connectedness.

Morrison *et al.* (2008) found out that four variables had the largest and most consistent influence on participation: trust, social connectedness, business orientation, and information seeking. However, environmental responsibility, innovator and profit focus variables were only found to be good predictors of behavioral intentions. A positive attitude to the program and trust in those administering the program were found as being very influential in participation.

Morrison *et al.* (2008) found out that age was negatively related and education and gender was positively related to participation. Farm size, hours worked on property, number of years a respondent had lived in their local district were found to influence participation. Income earned off farm was negatively related to participation. In summary the participant's profile from their research is:

“Therefore, the characteristics of those more likely to participate in an MBI or incentive program include being younger, more educated and male. They tend to work a larger amount of time on their property, own larger properties, and have lived in their local district for a longer period of time” (MORRISON *et al.*, 2008, p. 55).

Figure 1 below shows the concepts of attitude and behavior variables contextualized by Morrison *et al.* (2018).

Figure 1: Conceptualization of Morrison's attitude and behavior variables.

Trust	<ul style="list-style-type: none"> Trust refers to the trusts in those delivering the program and the amount of connectedness in the community. Trust has the potential to increase participation when there is trust in those organizations delivering and running the program (Morrison et al. 2008).
Satisfaction	<ul style="list-style-type: none"> Satisfaction refers to the identification of which specific aspects of the program delivering have the greatest influence on overall satisfaction. Satisfaction variable has some relation to the participation but it is not strong enough compared to the other variables.
Profit Focus	<ul style="list-style-type: none"> Profit focus refers to landholders' profitability when participating in the program. Profit focus is a good predictor of behavioral intent rather than effective participation. (Morrison et al. 2008).
Environmental Responsibility	<ul style="list-style-type: none"> Environmental Responsibility refers to get behavioral measures of landholders' degree of environmental orientation. Environmental Responsibility is a good predictor of behavioral intent rather than effective participation. There is uncertainty about the usefulness of environmental responsibility in explaining participation (Morrison et al. 2008).
Innovator	<ul style="list-style-type: none"> Innovator refers to the ability of landowners to innovate or search for innovation. Innovator is a good predictor of behavioral intent rather than effective participation. (Morrison et al. 2008).
Business Orientation	<ul style="list-style-type: none"> Business orientation refers to get behavioral measures of landholders' degree of business orientation and to identify the various aspects of property-related business orientation. Business orientation was also perceived as a characteristic likely to influence participation (Morrison et al. 2008).
Information Seeker	<ul style="list-style-type: none"> Information Seeker refers to get behavioral measures of landholders' degree of their information seeking. Information seeker is one of the best predictors of all variables investigated and is particularly important for predicting the participation.
Social Connectedness	<ul style="list-style-type: none"> Social connectedness refers to the connection of a party with other individuals and groups. Social connectivity has the potential to reduce the information-collection costs of the private parties associated with learning about, adopting and adapting to a new policy as individuals are exposed to this information in their day-to-day activities which reduces the need to seek out this information specifically (Coggan et al., 2015).

Source: MORRISON *et al.* (2008) adapted by the Author

Therefore, through the identification of socioeconomic and situational variables together with attitude and behavior variables, a socioeconomic profile can be built.

2.3 NATIONAL WATER AGENCY (ANA): WATER PRODUCER PROGRAM

In order to encourage PES policies in Brazil, the National Water Agency (ANA – Agência Nacional de Águas) was created by Law No. 9,984 of 2000 (BRASIL, 2000), which is the regulatory agency for this type of assessment instrument (PES), through the Water Producer Program (Programa Produtor de Água - PPA). The ANA is legally liable for implementing the National Water Resources Management System, created to ensure the sustainable use of Brazilian rivers and lakes for the current and future generations (ANA, 2019).

Dedicated to complying with the objectives and guidelines of the Brazilian Water Law - No. 9,433 of 1997 (BRASIL, 1997). ANA acts in four lines of action: Regulation (regulates access and use of Union-wide water resources), Monitoring (responsible for monitoring the state of Brazil's water resources, from rivers, dams, river flow and sediment or rainfall, to the operation rules of reservoirs of hydroelectric power plants), Law Enforcement (coordinates the implementation of the National Water Resources Policy, conducting and supporting programs and projects) and Planning (prepare or participate in strategic studies) (ANA, 2019).

PSE is embedded in the law enforcement line, through the implementation of the National Water Resources Policy carrying out and supporting programs and projects, state management bodies and the installation of river basin committees and agencies. ANA encourages the participation of representatives of governments, users and communities and a participatory management in partnership with institutions and bodies of public power on PSE programs (ANA, 2009).

In 2001, ANA developed the Water Producer Program but the program started to operate in 2005, when the first project “*Conservador das Águas de Extrema/MG*” was implemented.

According to its Operative Manual (ANA, 2012) the program is an instrument by which the Union supports the improvement, recovery and protection of water resources (rural areas), with the aim of reducing erosion and siltation of springs, in order to increase the quality and make water supply more regular. Actions implemented under the program include reforestation, upgrading of rural roads and conservation of soil and water in productive areas.

Water Producer Program aims at the recovery of watersheds focusing on water resources through the articulation of environmental management, management of water resources and land use; using the establishment of financial incentives. It is a control program of rural diffuse pollution, directed primarily to watersheds of strategic importance for the country. It focuses on reducing erosion, improving water quality and increasing river flows, using mechanical and vegetative soil and water conservation practices (ANA, 2009, 2012, 2019).

The program is conducted under ANA's guidance and support in all projects in various regions of Brazil. Most of these projects are conducted by local institutions united by organizational arrangements composed of states, municipalities, basin committees, and other public or private institutions. ANA's support to projects may be technical or technical/financial only. In the latter case, the transfer of funds from the Agency to the projects has been done through agreements or, mainly, on lending contracts (ANA, 2009, 2012, 2019).

In the Water Producer Program, the valuation of water protection environmental services is based on a Reference Value, which is the opportunity cost of using one hectare of the project area, expressed in R\$ / hectare /year. This value is obtained by the development of an economic study, specific to the project area, based on the most used agricultural activity in the region, or on a set of activities that best represents the average net gains obtained from its use (ANA, 2012; ANDRADE *et al.*, 2012; DELEVATI *et al.*, 2018; MORAES, 2012). The opportunity cost refers to the profit that the service provider would not receive when rejecting to develop another land use activity (WÜNSCHER; ENGEL; WUNDER, 2008).

To this end, the program supports, guides and certifies projects aimed at reducing erosion and silting up of sources in the rural environment, improving the quality, expansion and regularization of water supply in watersheds of strategic importance to the country.

Currently, there is a bill awaiting consideration by the Federal Senate (PL 312/2015). This law would institute the National Policy for Payment for Ecosystem Services (PNPSA) (BRASIL, 2015).

There are currently twenty seven active programs in Brazil linked to the Water Producer Program, the location of the programs are shown in the Brazilian map below (Figure 2). The green triangles are the location of the active programs, with their highest concentration in the southeastern region. The state of Minas Gerais has the largest number of programs, coincidentally having the first Water Producer Program in Brazil, in the city of Extrema/MG.

Figure 2: Illustration of Water Producer programs location in Brazil



Source: ANA (2019)

Those twenty-seven projects have water and soil conservation actions in their respective basins. There are also environmental revitalization actions, recovery of Permanent Preservation Areas (APP), in addition to actions to readjust rural roads, and environmental education. Thus, the aim is to improve the quality and quantity of water and reduce runoff, which results in problems, such as erosion and silting.

The hydrographic basins of these regions supply homes, commercial establishments, urban and rural areas and industries, among many others. The main intention of these projects is to revitalize the basins. The projects have the participation of several public and private institutions. The participants in these projects are mostly connected to agricultural activities, highlighting the economic importance that this activity has for the regions.

Next chapter of this dissertation, the methodological procedures will be treated.

3 METHODOLOGICAL PROCEDURES

In this sequence will be presented the research methodology divided into topics: research design, study area, sample design, data collection and data analysis.

3.1 RESEARCH DESIGN

The study adopted a descriptive and exploratory research design using the case study research method. Thus, exploratory research aims to provide greater familiarity with the problem, to make it more explicit or to constitute hypothesis. This type of research has as its main objective the improvement of ideas or the discovery of intuitions (GIL, 2008). The author further explains that this type of research can take many forms and a literature review and may be helpful for a better understanding of an issue. Literature reviews may be conducted in trade and academic journals and other sources where research is reported.

As reported by Vergara (2003), descriptive research specifically describes a certain phenomenon, facing both qualitative and quantitative aspects, an area in which there is little clarity and structured knowledge is analyzed. Therefore, this type of study includes a bibliographical survey, the accomplishment of interviews with agents participating in the research problem and the observation of examples that help the understanding. Descriptive research is related to phenomena of practical action, and because it provides elements about the characteristics of a particular problem or research question, that is, it exposes characteristics of a given phenomenon and population (VERGARA, 2003). Descriptive research presents a predefined planning and structure so that the information collected can be statistically inferred in a population (GERHARDT; SILVEIRA, 2009).

The research method chosen was the case study. This type of study contributes to the understanding of individual, organizational, social, political and even economic phenomena (YIN, 2001). The author further describes as the best method for analyzing contemporary events, especially when relevant behaviors cannot be manipulated. Gil (2008) specifies that the case study has been increasingly employed by researchers, mainly because it allows exploring real-life situations whose limits are not clearly defined as well as it allows describing a situation of the context in which the investigation is being made. The study is characterized by a predominantly quantitative approach. Therefore it involves the processes of collection, analysis, interpretation and writing of the results (CRESWELL, 2007). Richardson (1999, p. 80) declare that studies with a quantitative approach can “describe the complexity of

a given problem, analyze the interaction of certain variables, understand and classify the dynamic processes experienced by social groups”. Therefore, by using the quantitative variable, greater accuracy of the results is guaranteed, since there is a greater margin for inferences (RICHARDSON, 1999). Thus research from a positivist perspective emphasizes quantitative procedures (GIL, 2008).

Survey data were collected using more than one source. First, secondary data were collected, and then primary data, as explained below.

The technique (primary data) used in the field research of this work was the structured interview, according to Gil (2008), this technique develops from a fixed list of questions, whose order and wording remains invariable for all interviewees. The advantage of using structured interviewing is that it allows statistical analysis of the data, as the answers obtained are standardized. In the structured interview, a previously established script is followed, the questions are predetermined and the objective is to obtain different answers to the same question, thus enabling them to be compared (GERHARDT; SILVEIRA, 2009).

For a better understanding of the project, a collection of secondary data was realized with those responsible for the project, such as the representative of the project. According to GIL (2008), the secondary data survey main objective is the description of the characteristics of a given population or phenomenon, or the establishment of relationships between the variables studied. A documentary analysis was also conducted between August and October of 2019; data from various previous sources was used and all this documentation was researched at Web of science, Scopus and Google Scholar.

Following is the second part of the methodological procedures that characterizes the study area.

3.2 STUDY AREA: VERA CRUZ/RS

Vera Cruz is located in the Rio Pardo Valley region; 166 km from the capital of Rio Grande do Sul, Porto Alegre. The main water resource of the region is the Arroio Andréas that has fundamental importance for water supply of the city of Vera Cruz. According to IBGE (2010) the stream supplies more than 7,200 households in the city of Vera Cruz, besides supplying the water demand of more than 1,000 rural households.

The map below locates the CITY of Vera Cruz in the state of Rio Grande do Sul (Figure 3).

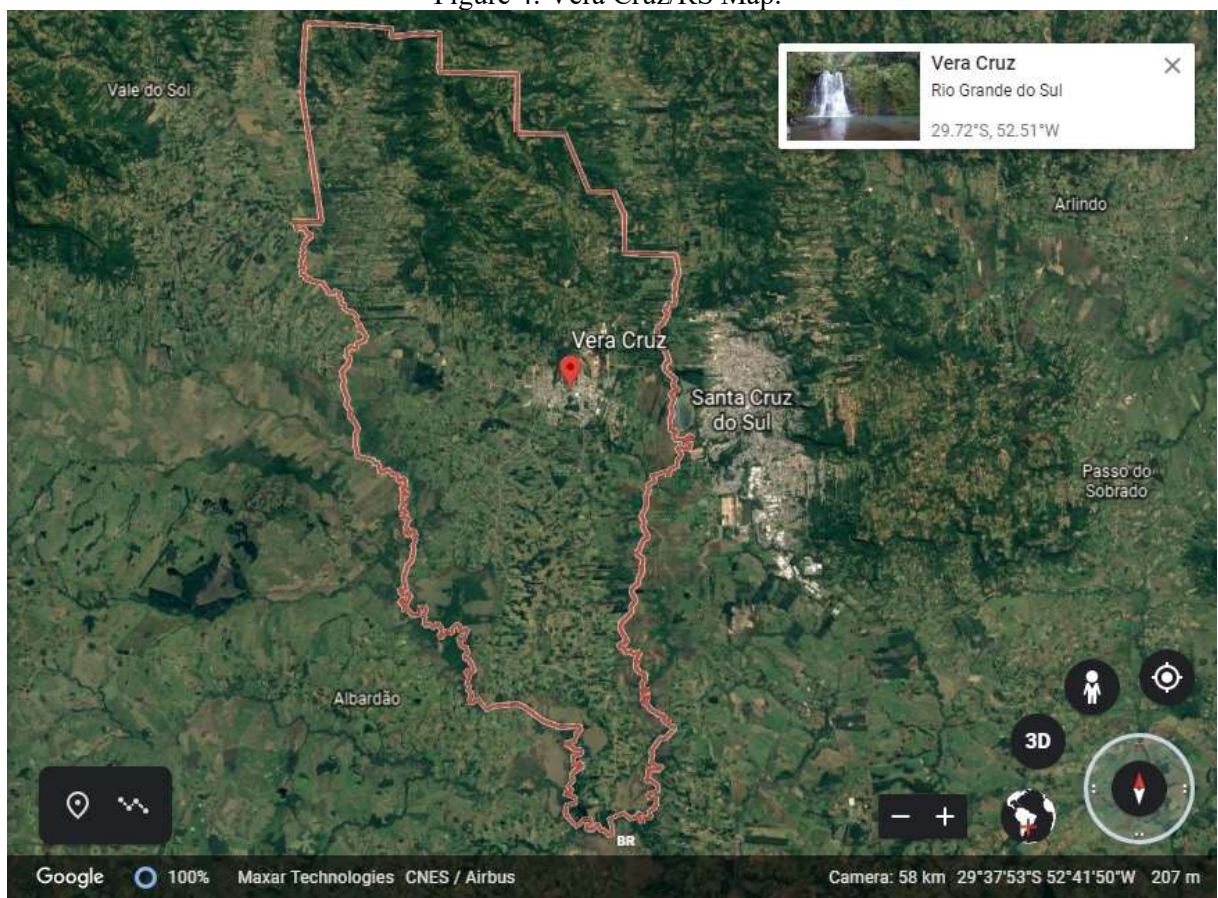
Figure 3: Illustration of the location of the city of Vera Cruz/RS



Source: Google Maps, 2019

The following is the map of the city of Vera Cruz, (Figure 4).

Figure 4: Vera Cruz/RS Map.



Source: Google Maps, 2019

With an estimated population of 26,863 people for 2019, (IBGE, 2019), most of them are women, and most of them live in the city, with more than two thousand inhabitants in relation to the rural area. The population of Vera Cruz is composed by 12,234 women and 11,749 men with a longevity of 75,5 years old. The age group over 65 years is composing of 14.1% women and 10.3% men (IBGE, 2010).

Vera Cruz is located near of the city of Santa Cruz do Sul, where the main tobacco industries of Brazil are located, such as Souza Cruz and Philip Morris. The presence of these companies has the support of the rural producers in which the cultivation of tobacco for processing is the main source of income. According to data from the municipal government, the tobacco industries are the majority, 95% of the rural properties are based on tobacco cultivation (VERA CRUZ, 2019). According to data from '*Portal Cidades*' (IBGE, 2019), the GDP per capita was R\$ 23,644.35 in 2017, the average monthly salary was 2.3 minimum wages.

Then according to the Agricultural Census IBGE 2017, the number of agricultural establishments decreased to 1,597, but the area of agricultural establishments increased to 20,866 hectares, the vast majority of temporary crop (7,898 hectares). In the area of natural forests and forests destined for permanent preservation or legal reserve is 3,950 hectares and planted forests is 1,453 hectares. Regarding permanent agriculture, orange, banana and tangerine are the most produced in the municipality with eleven, seventeen, and seven agricultural establishments with 50 feet and more, respectively (IBGE, 2017).

Regarding the temporary crop, the most produced goods are: sugarcane with 351 agricultural establishments and a harvest area of 184 hectares; cassava with 981 establishments and 264 hectares; soybean with 88 establishments and 845 hectares; maize with 1,199 establishments and 2,564 hectares and forage maize with 469 establishments and 730 hectares and, finally, tobacco with 1,192 establishments and a harvest area of 3,350 hectares.

According to data from the IBGE, 2006 Census of Agriculture, of the 1,845 agricultural establishments in the municipality, 1,531 establishments were owned by the producer, the majority of them being male. However, comparing with 2017 Census of Agriculture, the number of establishments decreased to 1,597, and 1,477 establishments are owned by the producer, and the majority of them being male.

Analyzing the 2006 and 2017 Census of Agriculture, the area of agricultural establishments increased from 20,284 hectares to 20,866 thousand hectares in 2017. Most of

which are temporary crop in both years, even though the area decreased from 8,843 to 7,898 hectares. In contrast natural forests and forests destined for permanent preservation or legal reserve increased significantly from 2,150 to 3,950 hectares.

The Municipality contains 925 properties under 5ha, 991 properties between 5 and 20ha, 248 properties between 20 and 50ha, 30 properties between 50 and 100ha, 7 properties between 100 and 200ha and 4 properties between 200 and 500ha (VERA CRUZ, 2019).

About 70% of the soil in the region is used for agriculture, however, due to the low natural fertility characteristics, it is very demanding in correctives, fertilizers and a good management system to achieve satisfactory yields. Still, it is necessary to use protective and soil recovery plants. (VERA CRUZ, 2019). This territory, in its characteristics, has the transition between the Pampa and Atlantic Forest biomes, so there are a good reserve of water resources (VERA CRUZ, 2019).

The following is the third part of the methodological procedures, represented by the sample design and how it was achieved.

3.3 SAMPLE DESIGN

The population for this research is the formal participants of the Water Protector Project in the city of Vera Cruz / RS. The author met the project during college and completed her course completion work on the project. During this period, she met the coordinator of the program Gilson Becker (Secretary of Rural Development and Environment and Works, Sanitation and Transit of Vera Cruz) in which they maintained contact and He welcomed the new research proposal. This helped accessing project documents, information in the implementation process, and program participants. Another important factor was the distance from Porto Alegre, city where the author lives, to Vera Cruz, thus facilitating locomotion, time spent on travel and consequently data collection. The project counts on the formal adhesion of 63 landowners covering 68 properties and totaling 144.6 hectares of preserved areas (DELEVATI *et al.*, 2018).

In 2016, the project started a partnership with ANA. Therefore, the contracts were signed during the year of 2016, in which the author had access. At this stage, five new objectives were signed, one of which is the implementation of 50 hectares of no-tillage. Therefore, 45 participants are part of this group that receives support and products for no-tillage, such as corn seed, oats, and gravel, and compost, herbicide, among other materials or help in labor.

Interviews and secondary data collection took place from August 26 to 28 and from September 11 to 13, during which time the author visited as many rural properties as possible and Vera Cruz City Hall. Thirty-nine landowners participating in the project from the total of sixty-three were interviewed.

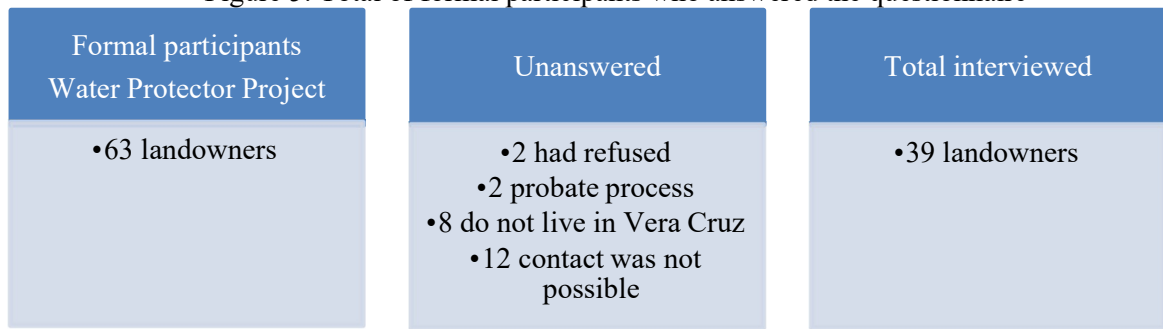
In the first days of visitation of the rural properties and the effective data collection, the author had the support of a City Hall driver, provided by the Municipal Secretariat of Agriculture and Livestock. This driver works with the delivery of products provided by the project to participants who are included in no-till.

In addition to learning how to get around the region by car, at this stage the author was introduced to the first interviewees. Therefore, information circulated among the residents of the region that an interview was taking place with the project participants, so this facilitated the approach of the next interviewees. The help in the early days was of great importance, mainly because a part of the project is located in a region known as 'Batata Ló', a place of difficult access.

During the first week, the author realized the impossibility of interviewing the 63 participants. All properties were visited on different days, shifts and times, and several attempts were made to interview as many as possible. The sample was no probabilistic, being the interviewees chosen according to their availability of agenda and willingness to participate in the study.

As a result, two participants would not answer the questionnaire because one has speech problems and did not want to answer and the other has social difficulty. Two farmers have died since 2016, so the property is in the probate process. Six participants live and work in Santa Cruz do Sul, one in Venâncio Aires and another one in Candelária, even being cities near Vera Cruz contact was not possible. Two participants live in the city of Vera Cruz, not on their respective rural properties, but contact was still not possible. Ten participants were not found on the rural properties during the data collection period. This information was passed by coordinator Mr. Gilson Becker, as can be seen in Figure 5 below.

Figure 5: Total of formal participants who answered the questionnaire



Source: The author (2019).

For this reason, thirty-nine formal project participants were interviewed personally by the author at their homes. While introducing herself, the author explained the purpose of the research, answered questions about her and this research. At this time the author asks permission to use the data collected in the interviews and only then effectively began the interview.

The following is the fourth part of the methodological procedures, explaining how data collection was performed.

3.4 DATA COLLECTION

In order to achieve the objectives of this work, structured interviews were conducted with active project participants. The data were collected through individualized and face-to-face interviews through structured script, and were recorded by hand by the researcher. The reason for not recording audio is based on the fact of the researcher's short contact with the interviewees, which could cause an inhibition due to poor confidence.

The survey consists of 45 questions with three categories of questions being the first one about socioeconomic characteristics of the landowners and their families, the second part was about situational characteristics (rural properties) of the landowners and the last part of the interview was about attitude and behavior variables such as trust, satisfaction, profit focus, environmental responsibility, innovator, business orientation, information seeker, and connectedness of the landowners.

The structured interview is based on the study conducted in Australia “Encouraging Participation in Market Based Instruments and Incentive Programs” by Professor Mark Morrison, Dr Jeanette Durante, Ms Jenni Greig and Dr John Ward. It is a research project of the Social and Institutional Research Program of Land & Water Australia and it was

completed in April of 2008. The aim of Morrison's research is to provide information about how to design and implement incentives and market based instruments (MBIs) to increase participation of farmers (MORRISON *et al.*, 2008). Thus, to reach that goal three main research questions are answered.

The first of these is what are the features or characteristics of MBIs and incentive programs that encourage participation; the second question focuses on understanding who participates in MBIs and incentive programs and the third and final question considered is how to communicate and deliver MBIs and incentive programs to maximize participation (MORRISON *et al.*, 2008). Thus, this research focuses on Morrison's second objective understanding who is participating in programs of incentives (MORRISON *et al.*, 2008)

On June 6th, 2019, the researcher contacted Mr. Morrison by email, presenting this research and requesting information about the questionnaire structure and research tips. Mr. Morrison promptly responded. He forwarded the questionnaire and also a new 2013 article in which it would be a new approach to the survey.

Consequently, the author adapted the Australian questionnaire to the Brazilian reality with the help of her advisor. The first part of the questionnaire is the socioeconomic characteristics (questions 1 to 5), at this stage the questions were adapted according to the questionnaire of the Agricultural Census 2017.

The second part of the questionnaire is the situational category (questions 6 to 15). At this stage some questions are opened, such as property size, and others are closed. Regarding the open questions, after tabulating the data, the author divided the answers into scales for a better analysis of the results.

The third part of the questionnaire is the attitude and behavior variables (questions 16-45) such as trust, satisfaction, profit focus, environmental responsibility, innovator, business orientation, information seeker, and connectedness of the landowners.

Some of the questions used Likert Scale, this scale, measures attitudes to set statements put by the questionnaire and the respondent is provided with a scale of possible responses to the question. The five (5) point Likert scale model is the most used, where the highest value indicates total agreement with the statement and the lowest value indicates total disagreement with the statement (ALMEIDA, 1989; WILKINSON; BIRMINGHAM, 2003). Questions 16, 18, 20, 21, 23, and 28 are five-point Likert agreement scale. Question 17, and 24 are five-point Likert scale but with different scales. Question 35 uses a four-point scale for the usability of seeking information. The other questions are either closed or multiple choice.

Some questions of Morrison's collection instrument were excluded and the layout of the collection instrument was changed, thus facilitating the development of the interview. The collection instrument is in Appendix A.

The following is the last part of the methodological procedures, explaining how data analysis was performed.

3.5 DATA ANALYSIS

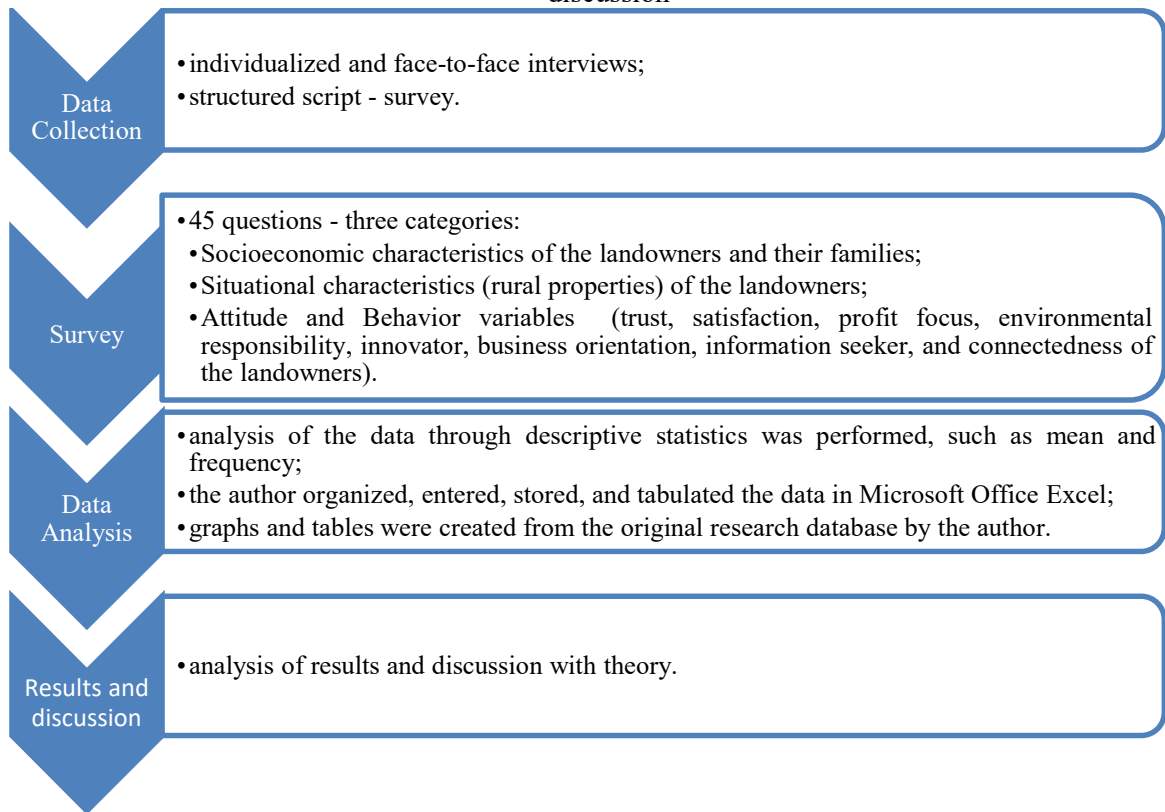
The analysis of the data through descriptive statistics constitutes an important part of the research. Then, the answers obtained through the interview script were evaluated quantitatively. After the application of the data collection instrument, an analysis of the generated descriptive statistics was performed, such as mean and frequency.

The variables evaluated were socioeconomic characteristics (age, sex, education level, etc.) of the respondents and their families, as well as the situational characteristics (rural properties) and attitude and behavior variables such as trust, satisfaction, profit focus, environmental responsibility, innovator, business orientation, information seeker, and connectedness of the landowners.

Statistical analysis allows the collected data to be transformed into information, and is an important tool for this type of work. Within the statistic, there is the descriptive statistic that composes an initial stage of the analysis process, being the same used to describe and summarize data. Due to the availability of a variety of data, the treatment of these data using these methods will make the measurement become even more dynamic and reliable (TRIOLA, 1999). As Stevenson (2001) mention descriptive statistics is used as a way of describing information through organization, summary and simplification it, which can be very complex. Finally, descriptive statistics makes things easier to understand, analyze, and discuss.

After data collection, the author organized, entered, stored, and tabulated the data in Microsoft Office Excel in the spreadsheet form during October of 2019. Thus, enable the author to analyze the research results. Graphs and tables were created from the original research database by the author. Figure 6 is a summary of the process from data collection to analysis.

Figure 6: Research process: data collection, survey and data analysis and its stages to results and discussion



Source: The author (2019).

The results and discussion were written during November and December of 2019 by the author and they are presented in the following chapter: Results and discussion.

4 RESULTS AND DISCUSSION

In this chapter, the search results are presented. The description will be presented below in a split form for easier description and interpretation of data. First there is a more detail description of the Water Protector Project. After, this chapter will be divided into socioeconomic and situational characteristics of the landowners, and attitude and behavior variables such as trust, satisfaction, profit focus, environmental responsibility, innovator, business orientation, information seeker, and connectedness of the landowners participating in the ‘Water Protector Project of Vera Cruz / RS’.

4.1 WATER PROTECTOR PROJECT

The “Water Protector Project” began in 2011 with financial support from the private sector, so being the pioneer project of Southern Brazil in this respect; other projects existed, but none being 100% privately funded. The project aims to protect the water resources of the basin, ensuring the preservation of water resources by paying farmers for the provision of environmental services to protect the water resources that are located on their properties.

The project history started in 2010, with the support of the municipal government, jointly with the University of Santa Cruz do Sul (UNISC) and in partnership with Universal Leaf Tobacco and Fundación Altadis (a non-profit organization, belonging to the Imperial Tobacco Group). These institutions agreed to carry out a project in the Arroio Andréas, with the aim of contributing to the recovery of the potable water production capacity in this sub-basin. The Arroio Andréas basin has a fundamental importance as water supply management of Vera Cruz city. It has a drainage area of 80.2 km² with a length of 21 km, and a Permanent Preservation Area (APP – *Área de Proteção Permanente*) along the 126 hectare Arroio Andréas (IBGE, 2010).

Currently, the program has 63 integrated producers and covers 144.48 preserved hectares (on 68 rural properties). The realization occurs in partnership with UNISC, supported by the Ministry of the Environment City (through ANA), Pardo Committee, Emater/RS-Ascar, Afubra and SindiTabaco (VERA CRUZ, 2019)

Upon joining the project, the landowner receives annually R\$ 325,00 (three hundred and twenty-five reais) per preserved hectare, receives annually R\$ 200,00 (two hundred reais) for joining the project and exemption from water tariffs (up to 15 m³) (VERA CRUZ, 2019).

The amount received by the landowners who joined the project was calculated by the 'Opportunity Cost' (DELEVATI *et al.*, 2018).

After the idealization of the project, “the basin was diagnosed by visiting all rural properties that have springs and riparian areas, 80 properties were visited and approximately 140 springs were found” (DELEVATI *et al.*, 2018, p.32). First contact with farmers was relatively difficult, due to the lack of knowledge of this type of program by landowners and also for fear of losing control of their farms. As the project developed and confidence gradually gained the interest of farmers increased and the project began to grow; in 2011, 25 producers joined, while in 2012 another 27 producers joined the project, with a total of 52 rural producers (VERA CRUZ, 2019).

Research on the biological and physical-chemical analysis of the springs guaranteed positive qualitative and quantitative results. Therefore, there was an improvement in the quality of water in the region, thus enabling an improvement in the quality of life of the population and generating savings for the City hall, through the reduction of expenses with chemical products at the Treatment Water Station. The initiative is a pioneer in the State of Rio Grande do Sul, being awarded the 1st FAMURS Best Practices Award in 2016 (VERA CRUZ, 2019).

From 2011 to 2015, the project was funded by Universal Leaf Tobacco and Fundación Altadis in the amount of € 505,000 (five hundred and five thousand Euros), with the Municipal administration being responsible for the implementation, administration and management of the project (VERA CRUZ, 2019).

In 2015 the Municipal Law 4,264 (2015) was created (ANNEX B). This act establishes the Municipal Policy for Payment for Ecosystem Services, creates the Municipal Program for Payment for Ecosystem Services and the Municipal Fund for Payment for Ecosystem Services.

Two other events took place in the year 2015, first, the water tariff exemption legislation for project participants was regulated; and second, Vera Cruz City Hall forwarded the project documentation to ANA with a view to entering the Water Producer Program, the Brazilian National Water Production and Protection Program.

By the end of 2017, the Water Protector Project began to be implemented in partnership with ANA (ANA, 2019). In all, the amount reaches R\$ 667.425,00 (six hundred sixty-seven thousand four hundred and twenty-five reais). The Federal Government passed on R\$ 654.076,50 (six hundred and fifty-four thousand and seventy-six reais and fifty cents) and

the city government paid 2% of this amount, R\$ 13.348,50 (thirteen thousand three hundred and forty-eight reais and fifty cents).

So with this new partnership with the Federal Government, five goals were defined to be worked on: environmental education of the population; producer training carried out by Emater; implementation of 50 hectares of no-till (proper soil management and conservation practices); 20 km improvement of internal roads of participating rural properties (improving roads and property access with gravel placement and drainage adequacy); readjustment of the slopes near the water capitation (ANA, 2019; VERA CRUZ, 2019)

The inputs for correct cultivation will be provided by municipal government for three consecutive harvests. In the first year, soil analysis and liming were applied for acidity correction for subsequent planting of oat and corn seeds, as well as fertilizer, urea and herbicides delivered to each participating producer. Of the 63 project participants, 45 are participating in the no-till goal. (VERA CRUZ, 2019).

Throughout this period, numerous researches on water quality and quantity have been conducted by UNISC. It has been shown that the preservation of water resources in spring and riparian areas resulted in a significant improvement in water quality from a physical, chemical and microbiological point of view, comparing the periods before and after the installation of the preservation areas (DELEVATI *et al.*, 2018; KLAMT, 2015; VERA CRUZ, 2019).

During data collection, the researcher took some pictures, such as the nameplate of the participating properties, of a rural property (Figure 7 and Figure 8) and the stream (Figure 9), as shown below.

Figure 7: Image of the nameplate of the property participating in the project



Source: The author (2019).

Figure 8: Images of two rural properties participating in the project



Source: The author (2019).

Figure 9: Images in some points of the stream



Source: The author (2019).

The following is the second part of the results and discussion, explaining socioeconomic and situational characteristics results.

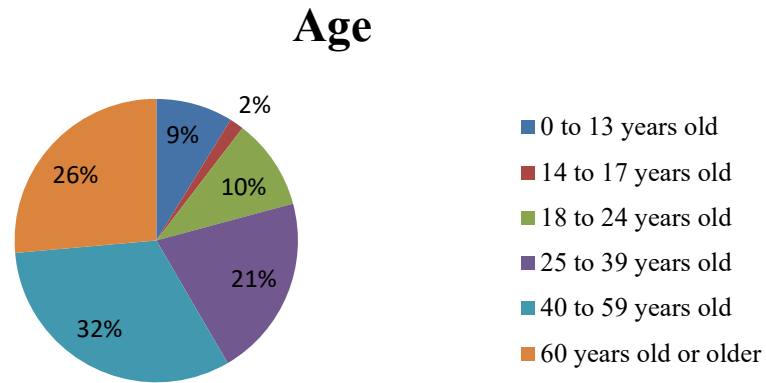
4.2 SOCIOECONOMIC AND SITUATIONAL CHARACTERISTICS

As previously explained 39 landowners were interviewed, of this total, 24 joined the project in the first year (2011), 7 in the second year (2012), 7 in the third year (2013) and 1 in the fourth year (2014). Hence most respondents have been participating in the project since its beginning.

The first question of the questionnaire was intended to describe the family structure. The total sum of family members was 125 people. The mean population per family was 3,2.

The 40 to 59 age group prevails, with over 50% of the population over 40 years of age, thus corroborating the 30% retirees people respondents. With a low number of children among the interviewed families (Figure 10). In his research Morrison *et al.* (2008) reports that both in the literature review and in its results age have a negative effect on participation.

Figure 10: Age distribution of family structure of landowners interviewed



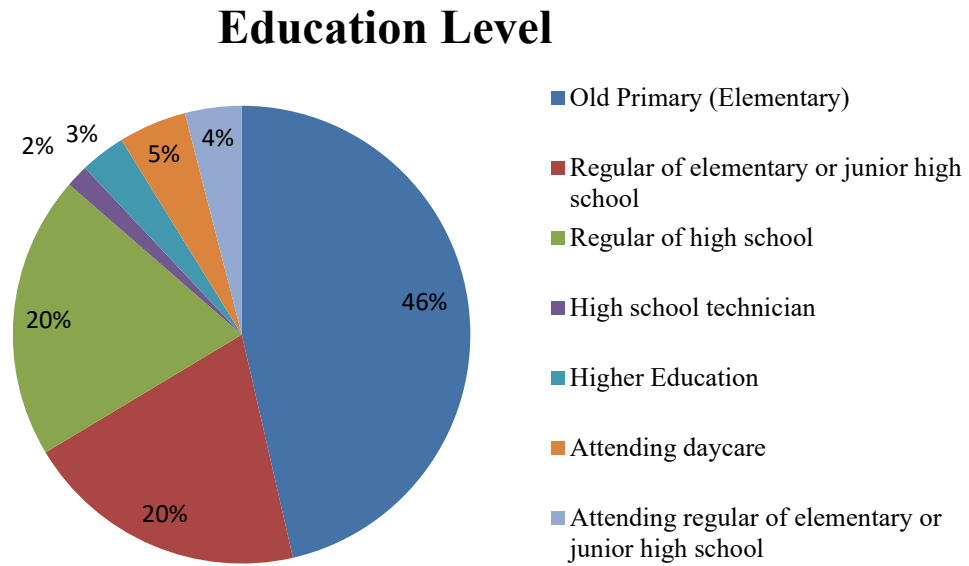
Source: The author (2019).

The respondents were predominantly female (52%). During the interviews, the role of women in the initial stage of the project was noted. In the first project meetings, as reported by respondents, some women encouraged the participation of other landowners, highlighting the future benefits of the project, the importance of water in the region and the environment for all.

As can be seen Figure 11 in the largest education categories were Old Primary (46%), Elementary School (20%) and High School (only 20%). Old Primary was the first stage of school education and lasts for the first 4 years. It was reported during the interviews, mainly by older respondents, that in the past the school in the region only went until the fourth grade.

In his research Morrison *et al.* (2008) suggested that education is positively related to participation. However, the educational level of this research is considered low.

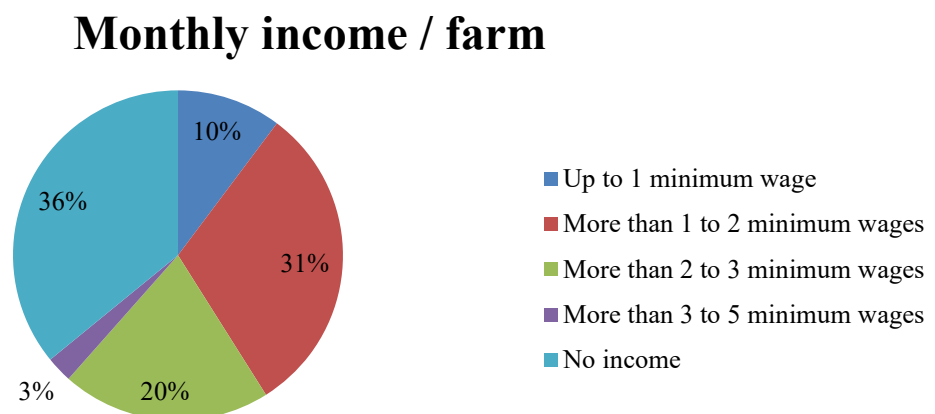
Figure 11: Education levels of interviewed



Source: The author (2019).

Participants were also asked about their family income earned on the farm. According to Brazilian Decree No. 9,661 of January 1, 2019, the Brazilian minimum wage is R\$ 998,00 (nine hundred and ninety eight reais) (BRASIL, 2019). As can be seen in Figure 12, 36% had no income and 31% earned between 1 to 2 minimum wages.

Figure 12: Family monthly incomes earned on the farm declared by interviewed

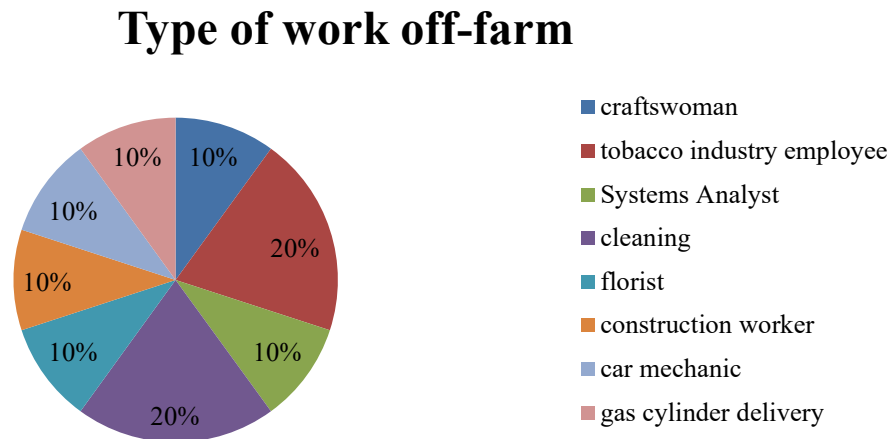


Source: The author (2019).

No income on the farm respondents, can either be retirees, or work off-farm. Therefore, the monthly income from agricultural activity is low, ranging between 1 and 3 minimum wages.

Respondents were asked about family income earned off-farm. Thus 26% have a non-agricultural income and the average monthly salary for this job is more than 1 to 2 minimum wages. As a result, off-farm income is important among the rural families surveyed. Figure 13 shows what kind job is performed. The factors related to the individual's income show that the higher the individual's income, the greater his propensity to participate in the proposed scheme (OUVERNEY *et al.*, 2017). However, the producers' income can be considered low, in this research.

Figure 13: Type of work off-farm declared by interviewed

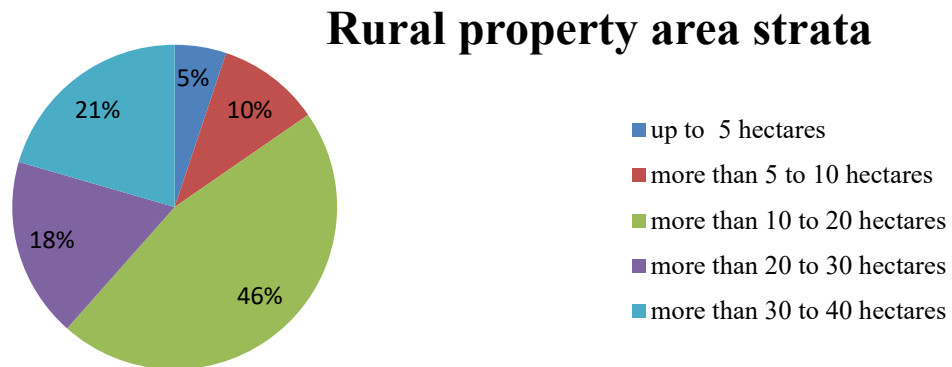


Source: The author (2019).

There were differences in responses about the type of jobs off-farm; just 20% worked in tobacco industry and 20% as a cleaning, thus generally jobs that require little professional qualification.

All landowners participating in the project have worked in agriculture since childhood and all are owners of the land. The properties belonging to the research sample ranged from 1 ha to 37 ha, the largest frequency of the size of the properties (46%) is between more than 10 to 20 hectares (Figure 14). Consequently, they can be considered as small farmers.

Figure 14: Rural property area strata declared by respondents.



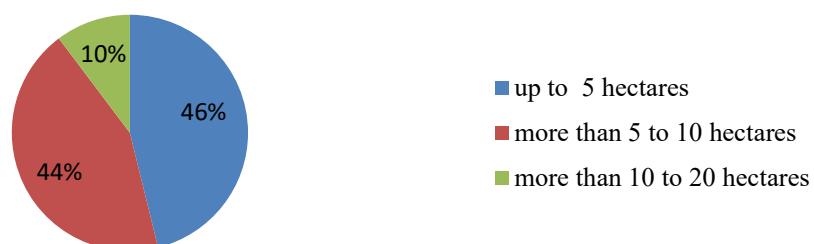
Source: The author (2019).

Respondents were asked about the area dedicated to agriculture in their properties (Figure 15), just 10% of the landowner's uses between more than 10 to 20 hectares for agriculture. In this question no distinction was made for the purpose of agriculture, whether it was for family consumption or trade purpose.

During the visit to the properties, the interviewed narrate that the region is not flat, so a large part of the properties are not used for agriculture, it is preserved. Regarding the size of the property's preservation area, it indicates that the larger the forest area on the property, the greater the individual's propensity to accept participating in the PES scheme (OUVERNEY *et al.*, 2017).

Figure 15: Rural property area strata dedicated to agriculture declared by respondents

Rural property area strata/ agriculture



Source: The author (2019).

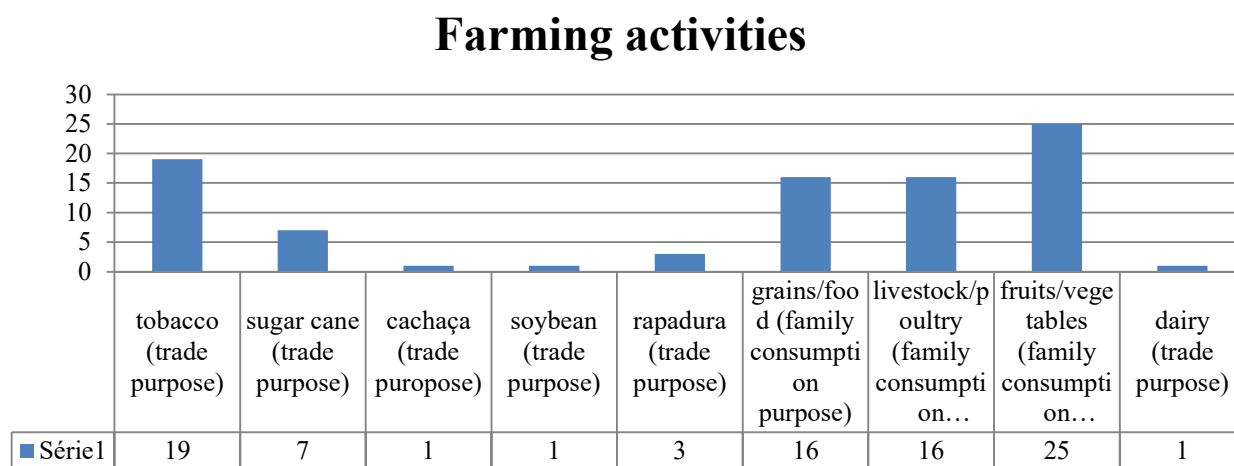
Landowners were also asked about the size of the area devoted to the program, 97% of rural properties dedicating up to 5 hectares. As explained earlier, the basin was diagnosed by visiting all rural properties that have springs and riverside areas. Subsequently, the possible

preservation areas within each property were reviewed and negotiated with landowners, as narrated by Mr. Gilson Becker. After the landowner determined the area to participate in the project, the determined area was demarcated and fenced (DELEVATI *et al.*, 2018).

Respondents were asked to specify the main farming activities undertaken on their rural property. In other words, what they planted or raised or produced on their properties, either for trade or family consumption. Thus, six categories for trade purpose were found and three categories for family consumption.

As can be seen in Figure 16, tobacco, sugarcane, cachaça (Brazilian alcoholic beverage derived from sugar cane), soybean, rapadura (Brazilian sweet derived from sugar cane), and milk are the main farming activities amid trade purpose. Even so, tobacco production has the largest number of producers (19). Even though, 74% of the landholders do not have a family succession plan. Sugarcane, cachaça, and rapadura producers are all located in the same region called ‘Batata ló’.

Figure 16: Main farming activities undertaken on rural properties declared by interviewed



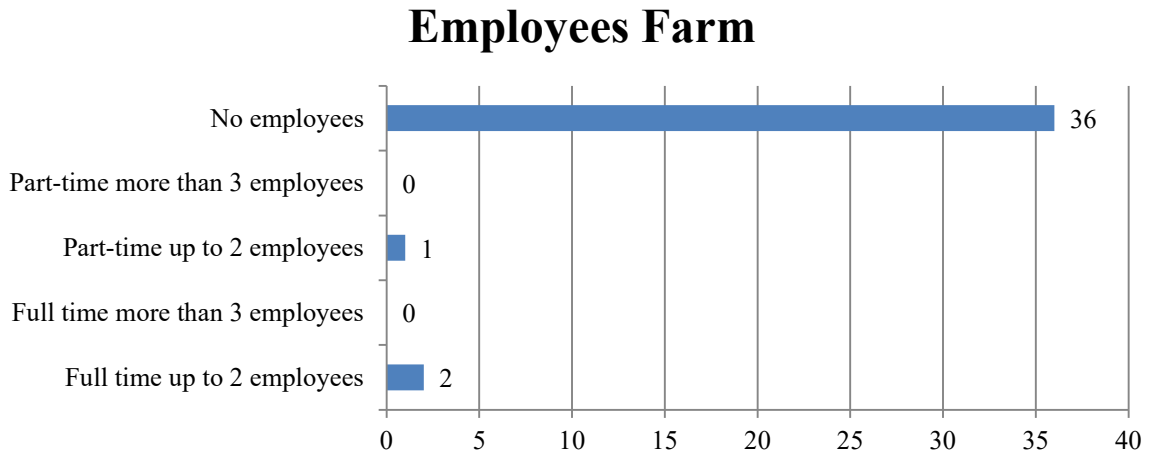
Source: The author (2019).

As usual in the region, most landholders consume what they cultivate or exchange crops with neighbors (Figure 16). Among those who grow for their own consumption are potatoes, cassava, corn, beans and rice, and a wide variety of fruits and vegetables. Thus, 16 landholders raise livestock and or poultry.

During data collection, it was realized that the whole family works on the property. It was also noted the help among neighbors during planting and harvesting (Figure 17), only 3 properties have employees in agriculture. All 36 other families have no employees. These are

typical traits of family farming: production for income and self-consumption, help between neighbors in agricultural activities, and work developed mainly by family members.

Figure 17: Numbers of employees on rural properties declared by interviewed

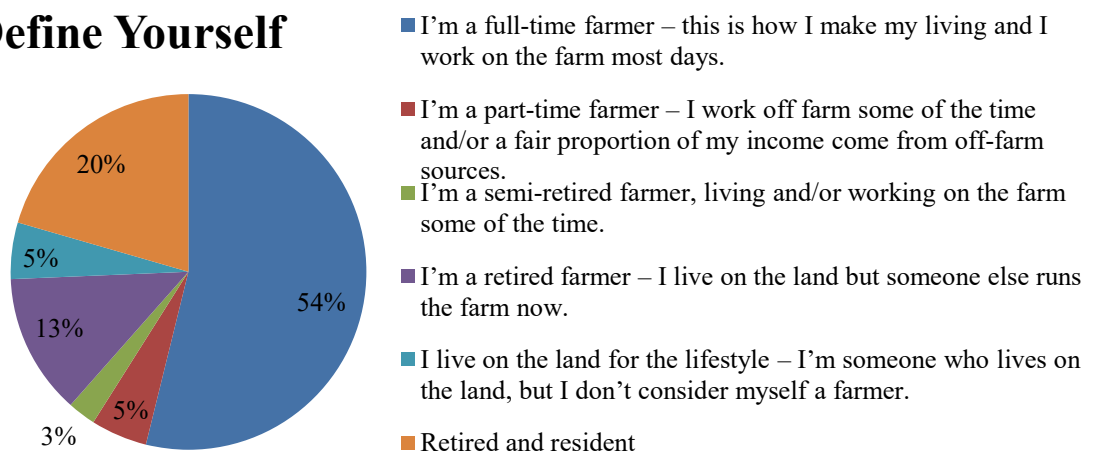


Source: The author (2019).

To finalize this part of the research, respondents were asked how they defined themselves (Figure 18). Five predefined options have been given to choose from. If they did not define themselves among these options, they could describe themselves in the sixth option (as shown in the questionnaire in Appendix A)

Figure 18: How the landowner defines himself, declared by interviewed

Define Yourself



Source: The author (2019).

The most frequently listed definition category by participants was ‘I am a full-time farmer’ (54%) – meaning this is how they make their living and they work on the farm most days. The remaining participants listed a wide variety of definition including a new one, where they defined themselves as a retired farmer that still lives in the property.

During the interviews, the interviewees declared that they and their family’s members are farmers and see themselves as farmers. They were raised that way; it is the only thing that they were taught to do. o even if they retire, they will always be farmers.

In summary, the results of this category, socioeconomic and situational characteristics, show that they are families with an average of 3.2 people, mostly adult women with an educational level of old primary and 30% of respondents are retired. The monthly family income earned on the farm is 1 to 3 minimum wages, and non-farm income is important among respondents. The interviewed are considered small farmers (46% of the farms are between 10-20 hectares), with typical traits of family farming. Commercial tobacco production has the largest number of producers and 54% of respondents declared that they are a full-time farmer.

The following is the third part of the results and discussion, the results on attitude and behavior variables will be presented.

4.3 ATTITUDES AND BEHAVIOURS

The next step presents the description of attitude and behavior variables such as trust, satisfaction, focus on profit, environmental responsibility, innovator, business orientation, information seeker, and connectedness of the landowners participating in the ‘Water Protector Project of Vera Cruz / RS’ interviewed.

4.3.1 *Trust*

Table 1, Table 2, and Table 3 reveals the data obtained in the research related to variable Trust.

So, Table 1 reveals how much respondents trust the Vera Cruz government, the federal government, farmers, and other people. Almost 80% trust in the Vera Cruz government. However, 56% of respondents do not trust the federal government. The mean confidence in most people, in general, was also low, but there is high confidence between farmers (mean 3,8), in other words they trust each other.

Table 1: Absolute frequency, percentage and mean of trust variable declared by interviewed

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)	Average (1 - 5)
The Vera Cruz government can be trusted.	1 (2.56%)	5 (12.82%)	2 (5.13%)	14 (35.9%)	17 (43.59%)	4.1
The Brazilian government can be trusted.	16 (41.03%)	6 (15.38%)	5 (12.82%)	10 (25.64%)	2 (5.13%)	2.4
Generally speaking, other farmers can be trusted.	0 (0%)	5 (12.82%)	4 (10.26%)	23 (58.97%)	7 (17.95%)	3.8
Generally speaking, most people can be trusted.	4 (10.26%)	17 (43.59%)	3 (7.69%)	15 (38.46%)	0 (0%)	2.7

Source: The author (2019).

Table 2 reveals how much respondents support or oppose groups running the Water Protector Project. Institutions such as City Hall of Vera Cruz, National Water Agency (ANA), and UNISC University received around 90% of support. As tobacco is the most produced product by farmers, the tobacco industry has a support of over 69%. In addition, when asked if they support the federal government, 35.9% answered no. Contradicting the support received by ANA (97% support), since ANA is a Federal Government Agency.

Table 2: Absolute frequency, percentage and mean of support or oppose of groups running the Water Protector Project

	Strongly oppose (1)	Oppose (2)	Neither support nor oppose (3)	Support (4)	Strongly support (5)	Average (1 - 5)
City Hall of Vera Cruz	1 (2.56%)	2 (5.13%)	1 (2.56%)	9 (23.08%)	26 (66.67%)	4.5
State Government	3 (7.69%)	10 (25.64%)	8 (20.51%)	16 (41.03%)	2 (5.13%)	3.1
Federal government	14 (35.9%)	7 (17.95%)	3 (7.69%)	9 (23.08%)	6 (15.38%)	2.6
National Water Agency (ANA)	0 (0%)	0 (0%)	1 (2.56%)	11 (28.21%)	27 (69.23%)	4.7
Unisc	0 (0%)	1 (2.56%)	0 (0%)	9 (23.08%)	29 (74.36%)	4.7
Tobacco industry	3 (7.69%)	4 (10.26%)	5 (12.82%)	9 (23.08%)	18 (46.15%)	4.7

Source: The author (2019).

Table 3 reveals how much respondents agreement among organizations that are involved in the delivery of the Water Protector Project. It can be observed that 76% of respondents report that it is okay to participate in this type of program, as long as they continue to manage their properties without interference from the organizations involved.

Table 3: Absolute frequency, percentage and average agreement among respondents of attitudes towards organizations involved in delivering the Water Protector Project

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)	Average (1 - 5)
You can trust the organizations involved in delivering these programs to do what is right most of the time.	0 (0%)	1 (2.56%)	1 (2.56%)	15 (38.46%)	22 (56.41%)	4.5
These programs are run by a few big interests looking out for themselves.	31 (79.49%)	6 (15.38%)	1 (2.56%)	1 (2.56%)	0 (0%)	1.3
The people running these programs are smart people who usually know what they are doing.	0 (0%)	2 (5.13%)	0 (0%)	12 (30.77%)	25 (64.1%)	4.5
These programs waste a lot of taxpayers' money	31 (79.49%)	0 (0%)	2 (5.13%)	4 (10.26%)	2 (5.13%)	1.6
People like me don't have any say about how these programs are run.	14 (35.9%)	2 (5.13%)	3 (7.69%)	16 (41.03%)	4 (10.26%)	2.8
Getting involved with incentive programs is a mistake as it will eventually lead to excess government interference.	36 (92.31%)	1 (2.56%)	0 (0%)	1 (2.56%)	1 (2.56%)	1.2
It's OK to be involved in an incentive program so long as I am still able to manage my farm without interference.	1 (2.56%)	0 (0%)	0 (0%)	8 (20.51%)	30 (76.92%)	4.7
It's a mistake to get involved with incentive programs because they change and you never know what will happen interference.	33 (84.62%)	5 (12.82%)	1 (2.56%)	0 (0%)	0 (0%)	1.2

Source: The author (2019).

It is important to analyze that in Table 3 there are negative statements about the program. Therefore, the low average responses of these negative statements reaffirm the importance of the Water Protector Project.

Thus there is Trust as referred by Morrison *et al.*(2008). In their work the trust in the organizations that delivery PES programs were found to be a particularly important predictor of participation. Trust is identified as a key element for the establishment of lasting transactions and solving problems throughout this type of program (SMITH *et al.*, 2013), but as Zanella; Schleyer; Speelman (2014) declares trust can also be developed for the success of PES programs.

There is a fear of rural landowners in relation to the risks of adhering to the program in terms of its continuity and excessive monitoring as well as in the uncertainty about the program, so trust must be worked on continuously (OUVERNEY *et al.*, 2017).

4.3.2 Satisfaction

Table 4 reveal the data obtained in the research related to variable satisfaction. Table 4 shows how satisfied the respondents are with the Water Protector Project. As can be seen, all satisfaction rates were high. In the opinion of the interviewees, the program achieved its objectives and was well managed.

It is noteworthy that during the interviews, when asked if it was easy to get in touch with the person in charge. everyone praised the project coordinator, Mr. Gilson Becker. greatly.

Table 4: Absolute frequency, percentage and mean of satisfaction with the Water Protector Project

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)	Average (1 - 5)
The program is beneficial.	0 (0%)	0 (0%)	0 (0%)	8 (20.51%)	31 (79.49%)	4.8
The program achieved its objectives.	0 (0%)	0 (0%)	1 (2.56%)	7 (17.95%)	31 (79.49%)	4.8
The rules and requirements for this program were easy to understand.	0 (0%)	0 (0%)	0 (0%)	9 (23.08%)	30 (76.92%)	4.8
It is easy to find the right person to contact in the program.	1 (2.56%)	5 (12.82%)	1 (2.56%)	6 (15.38%)	26 (66.67%)	4.3
The program was well administered.	0 (0%)	3 (7.69%)	2 (5.13%)	7 (17.95%)	27 (69.23%)	4.5

Source: The author (2019).

Accordingly to Morrison *et al*, (2008) satisfaction variable has some relation to the participation but it is not strong enough compared to the other variables, the same way in this study. Satisfaction levels are high, but have no real relationship with the decision of landowners to participate in the program.

4.3.3 Profit Focus

Table 5 reveals the data obtained in the research related to variable Profit Focus. Table 5 shows how respondents' attitudes to farming priorities in general and about farmer's attitudes towards making changes to farming activities. It was noticed that increasing the asset value or net worth of the farm was very important for respondents. This corroborates the claim that when planning future agricultural activities, the focus was on how profitable it would be, with an average of 4.5.

Table 5: Absolute frequency, percentage and mean of attitudes to farming priorities in general and about farmer's attitude towards making changes to farming activities

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)	Average (1 - 5)
Farmers should not be distracted by activities that do not involve farming.	15 (38.46%)	20 (51.28%)	0 (0%)	2 (5.13%)	2 (5.13%)	1.9
It is important for me to focus on my main profit-making activities.	9 (23.08%)	14 (35.9%)	2 (5.13%)	12 (30.77%)	2 (5.13%)	2.6
Increasing the asset value or net worth of the farm is very important to me.	0 (0%)	1 (2.56%)	2 (5.13%)	14 (35.9%)	22 (56.41%)	4.5
A maximum annual return from my property is my most important aim.	0 (0%)	10 (25.64%)	8 (20.51%)	9 (23.08%)	12 (30.77%)	3.6
Expanding the business is very important to me.	1 (2.56%)	2 (5.13%)	8 (20.51%)	13 (33.33%)	15 (38.46%)	4.0
When planning future farming activities, I only focus on how profitable they will be.	0 (0%)	1 (2.56%)	1 (2.56%)	15 (38.46%)	22 (56.41%)	4.5

Source: The author (2019).

In addition, the interviewees cited the importance of business expansion and the focus on profitability in the planning of future agricultural activities. However, nearly 90% disagree that Farmers should not be distracted by activities that do not involve farming. Perhaps this is

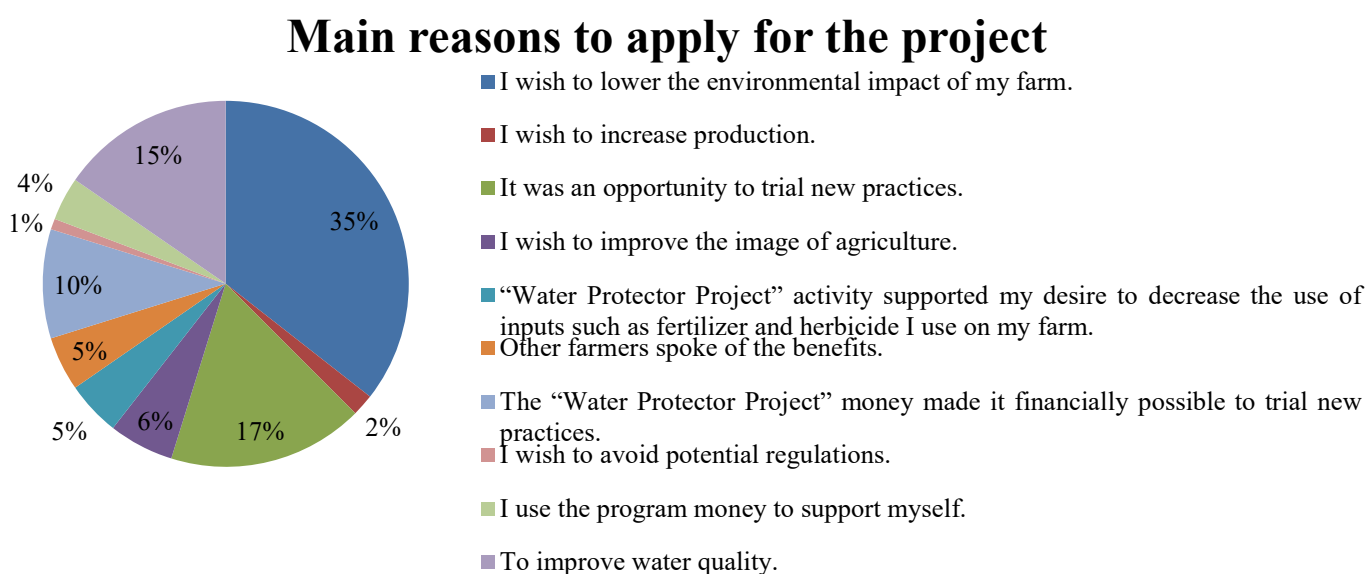
revealing that water protection is important from the perspective of water as an input for use in agriculture, in the view of respondents.

Accordingly to Morrison *et al.* (2008) Profit Focus refers to landholders' profitability when participating in the program, as results shows, the importance of profit is high for participating landowners, which corroborates Morrison's concept. However, the amount paid per hectare is relatively low, they receive annually R\$ 325,00 (three hundred and twenty-five reais) per preserved hectare plus R\$ 200,00 (two hundred reais) annually for joining the project. As stated by some participants, the extra benefits of participating in the program are more attractive. For that reason, the desirability of adopting a PES program depends not only on its per hectare profitability but also on whether it fits into the overall farming system (PAGIOLA; ARCENAS; PLATAIS. 2005).

4.3.4 Environmental Responsibility

Figure 19, Figure 20, and **Erro! Fonte de referência não encontrada.** and Table 6, and Table 7 reveal the data obtained in the research related to variable Environmental Responsibility. Figure 19 shows the main reasons why farmers applied for the water Protector Project. Respondents were asked the three top reasons why they enrolled in this project. Eight predefined options have been given to choose from. If they found it necessary, they could describe a reason (as shown in the questionnaire in Appendix A).

Figure 19: Main reasons why farmers applied for the Water Protector Project



Source: The author (2019).

Thus 35% of the respondents answered that wished to lower the environmental impact of their farm. Concern with the environment, the quality and quantity of water in the region was highlighted during the interviews. Participants commented on the lack of water in previous years, the concern for the future and in what conditions the rural properties will remain for the heirs. This result agrees with the first information from Table 6, in which 35 participants stated that it is of high priority to manage environmental problems.

Table 6 shows how respondents' attitudes to farming priorities in general and about farmer's attitudes towards making changes to farming activities. All respondents agreed or strongly agreed (mean 4.8) with the statement that they would like to leave the land in a better condition than they found it for their successors. Almost 90% agree that managing environmental problems on their farms was a very high priority and more than 94% of the respondents agree to preserve the beauty of the countryside. Even though, almost 34% of respondents disagree that most farmers they know try to minimize environmental damage.

Table 6: Absolute frequency, percentage and mean of attitudes to farming priorities in general and about farmer's attitude towards making changes to farming activities

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)	Average (1 - 5)
Managing environmental problems on my farm is a very high priority.	0 (0%)	1 (2.56%)	3 (7.69%)	21 (53.85%)	14 (35.9%)	4.2
I preserve the beauty of the countryside.	1 (2.56%)	1 (2.56%)	0 (0%)	10 (25.64%)	27 (69.23%)	4.6
I am willing to do something about the environmental effects of my farming practices.	0 (0%)	0 (0%)	4 (10.26%)	19 (48.72%)	16 (41.03%)	4.3
My right to do what I want with my property has to be balanced against wider environmental concerns.	1 (2.56%)	1 (2.56%)	1 (2.56%)	18 (46.15%)	18 (46.15%)	4.3
Most farmers I know try to farm in a way that minimizes environmental damage.	2 (5.13%)	11 (28.21%)	4 (10.26%)	21 (53.85%)	1 (2.56%)	3.2
I would like to leave the land better condition than I found it for my successors.	0 (0%)	0 (0%)	0 (0%)	8 (20.51%)	31 (79.49%)	4.8

Source: The author (2019).

Table 7 shows the farmers' use of chemical and / or fertilizer practices. During interviews respondents explained how expensive it is to use chemicals or fertilizer in general. So, there is an awareness of using as little as possible of this type of product. It has also been reported that there is a special waste collection of chemical or fertilizer residues, and when not delivered on time and correctly landowners suffer penalties. Therefore, the average was high in all claims regarding handling, disposal and overspray.

Table 7: Absolute frequency, percentage and mean that indicate the extent to which farmers follow each of these practices when using chemicals and/or fertilizer

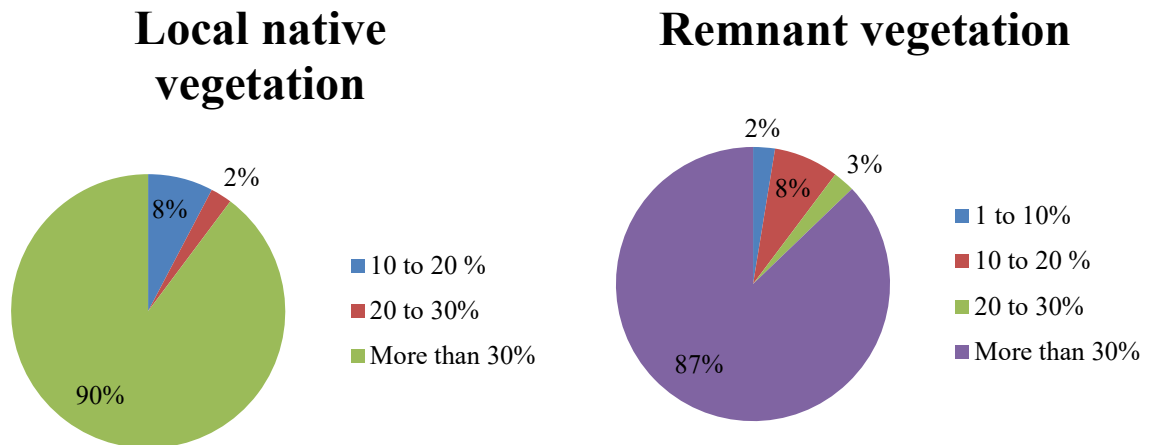
	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)	Average (1 - 5)
I attempt to store and handle chemicals for environmental safety.	0 (0%)	1 (2.56%)	3 (7.69%)	19 (48.72%)	16 (41.03%)	4.3
I attempt to minimize overspray.	0 (0%)	1 (2.56%)	2 (5.13%)	19 (48.72%)	17 (43.59%)	4.3
I dispose my chemical containers in a proper manner.	1 (2.56%)	0 (0%)	2 (5.13%)	14 (35.9%)	22 (56.41%)	4.4
I attempt to keep up to date about chemical use.	5 (12.82%)	4 (10.26%)	2 (5.13%)	9 (23.08%)	19 (48.72%)	3.8
I only apply the amount of fertilizer that will be taken up by my crops/plants.	0 (0%)	1 (2.56%)	4 (10.26%)	14 (35.9%)	20 (51.28%)	4.4

Source: The author (2019).

Figure 20 analyzes what percentage is currently covering respondent's rural property with local and remaining vegetation. As explained earlier this region is not flat thus making it difficult for landowners to control this type of vegetation.

Today, over 90% of the properties have more than 30% covered by native local vegetation, and now 87% of the properties have more than 30% covered by remnant vegetation. Respondents believe that in 10 years and 50 years, rural properties will have more than 50% of native vegetation, mainly due to the type of land and the lack of young people to take over the land.

Figure 20: Area Strata of local native vegetation (a) and remnant vegetation (b)



Source: The author (2019).

Consequently, there is Environmental Responsibility as referred by Morrison *et al.* (2008). In their work environmental refers to get behavioral measures of landholders' degree of environmental orientation. As shown previously, the program participants have behavioral attitudes of concern and environmental orientation, in addition to the desire to continue improving. Participation in PES programs is positively influenced by the level of prior knowledge that participants have on issues related to environmental conservation (OUVERNEY *et al.*, 2017). So, the more participatory the individual is in matters relating to the environment, the greater the chances of participating in conservation activities (OUVERNEY *et al.*, 2017).

4.3.5 Innovator

Table 8 reveals the data obtained in the research related to variable Innovator and it shows how respondents' attitudes to farming priorities in general and about farmer's attitudes towards making changes to farming activities.

Analyzing the innovation variable, both Emater's work and the financial issue were reported by the respondents. With an average of 4.7, respondents stated that low prices and high costs are a hindrance to testing new ideas. EMATER/RS-Ascar currently develops, encourages, and empowers a range of activities of economic and social scope, such as aid in the legalization of Agribusiness, Technical Assistance and Rural Extension, among others, thus serving around 280 families of family farmers (VERA CRUZ. 2019).

Table 8: Absolute frequency, percentage and mean of attitudes to farming priorities in general and about landowners' attitude towards making changes to farming activities

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)	Average (1 - 5)
Financially. I can afford to take a few risks and experiment with new ideas.	16 (41.03%)	10 (25.64%)	5 (12.82%)	8 (20.51%)	0 (0%)	2.1
I enjoy doing things that are innovative. even if other farmers might be unlikely to do them.	1 (2.56%)	1 (2.56%)	3 (7.69%)	29 (74.36%)	5 (12.82%)	3.9
Low prices and high costs mean that I have little money left to experiment with new ideas.	0 (0%)	0 (0%)	2 (5.13%)	8 (20.51%)	29 (74.36%)	4.7
I mostly find out about new ideas by talking with other farmers.	0 (0%)	1 (2.56%)	1 (2.56%)	13 (33.33%)	24 (61.54%)	4.5
I like to attend meetings with farm advisors to find out about new ideas.	2 (5.13%)	0 (0%)	2 (5.13%)	14 (35.9%)	21 (53.85%)	4.3
I find it tiring just to think about new farm improvements.	19 (48.72%)	7 (17.95%)	1 (2.56%)	10 (25.64%)	2 (5.13%)	2.2
I like to read information about new products and technologies.	2 (5.13%)	1 (2.56%)	2 (5.13%)	18 (46.15%)	16 (41.03%)	4.2
I am open to new ideas and alternatives about farming.	1 (2.56%)	0 (0%)	1 (2.56%)	21 (53.85%)	16 (41.03%)	4.3
I am willing to try new things.	0 (0%)	1 (2.56%)	1 (2.56%)	23 (58.97%)	14 (35.9%)	4.3
Knowing about new technology is important to me.	2 (5.13%)	0 (0%)	2 (5.13%)	22 (56.41%)	13 (33.33%)	4.1
I try to use new technology as often as I am able.	1 (2.56%)	1 (2.56%)	4 (10.26%)	24 (61.54%)	9 (23.08%)	4.0

Source: The author (2019).

However, even if there is a financial constraint, farmers are open to new ideas and testing new agricultural practices, more than 90% of respondents agree with these statements.

Thus, 37 respondents strongly agree or agree that they discover new ideas by talking to neighbors and 35 respondents stated that they like to attend expert meetings to find out about new ideas.

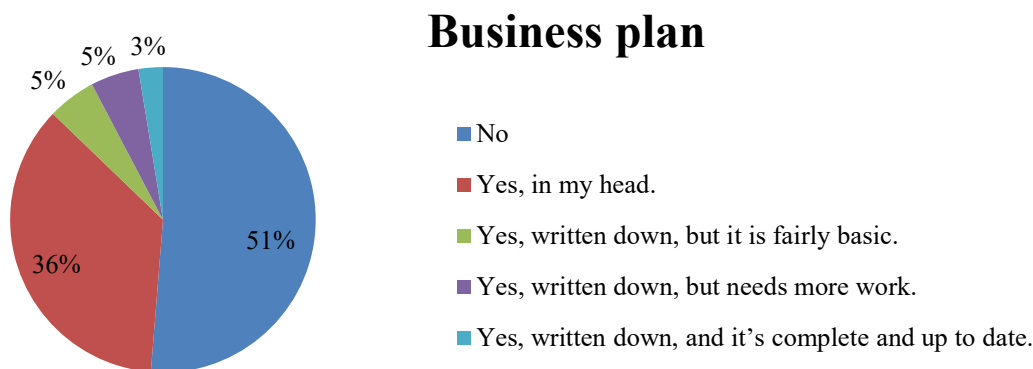
Consequently, there is Innovator conception as referred by Morrison *et al.* (2008). which is the ability of landowners to innovate or search for innovation. As this research shows, the adoption of innovations can be influenced by individuals hearing about, or observing the experiences of others (MORRISON; GREIG. 2008).

4.3.6 Business Orientation

Figure 21, Figure 22, and Figure 23 reveal the data obtained in the research related to variable Business Orientation.

Figure 21 shows the percentage for business plan by landowners. As can be seen 51% of respondents do not have a business plan and 36% said they have a business plan, but it is on their mind, consequently, they have not been documented or written. This corroborates with the statement that 82% of respondents do not use any computer program in the management of rural property (Figure 22).

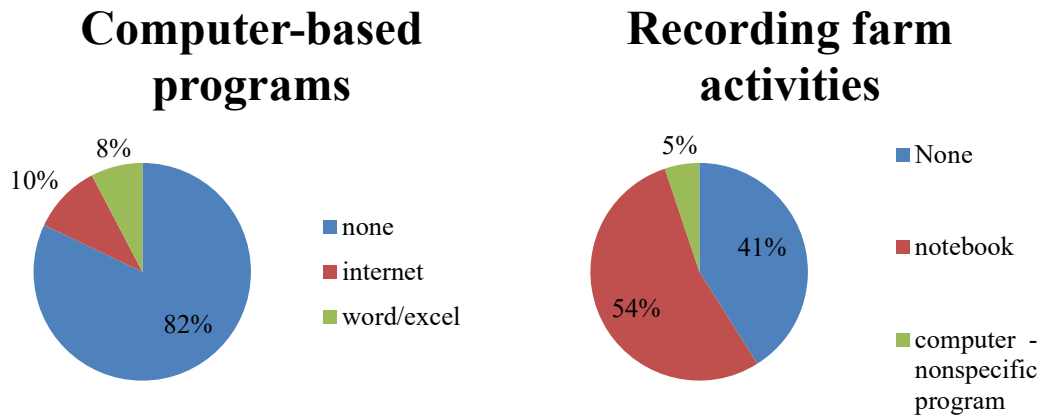
Figure 21: Percentage for business plan by landowners



Source: The author (2019).

When asked how they control property management activities 41% do not register and 54% use notebook (Figure 22). Respondents stated that the most common app used is the weather forecast.

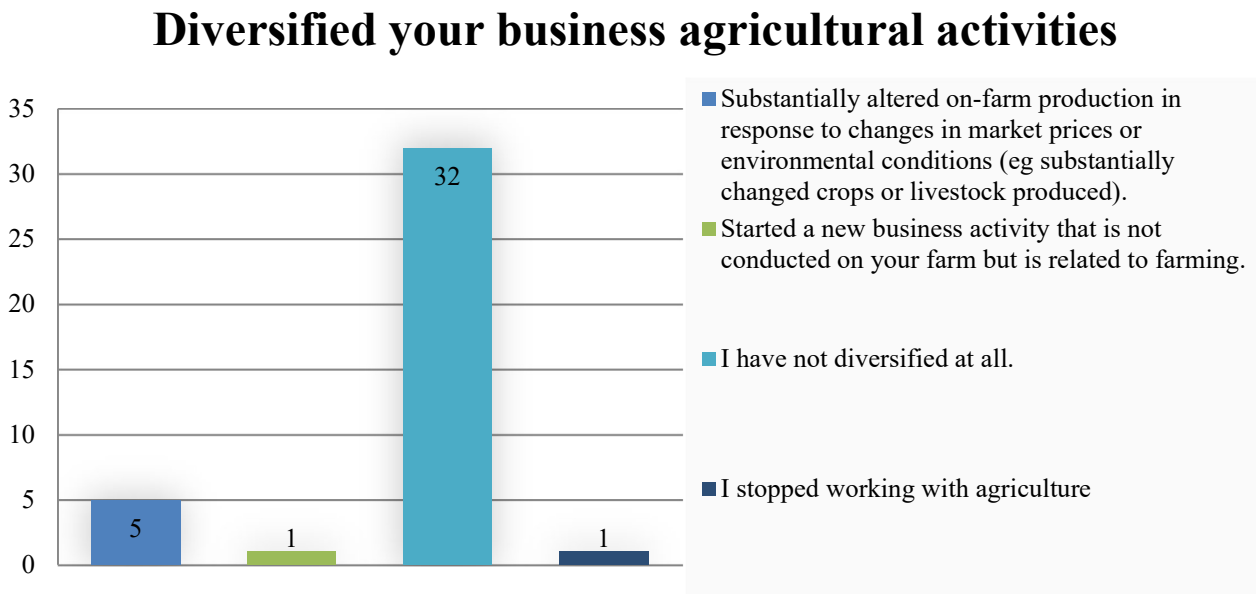
Figure 22 Computer based programs used by landowners and recording farm activities declared by interviewed



Source: The author (2019).

Figure 23 reveal if during the past five years the interviewed have diversified their business agricultural activities in any off four predefined options that have been given to choose from (Figure 23). If they found it necessary, they could describe a new one (as shown in the questionnaire in Appendix A). Thirty-two respondents stated that they have not diversified at all, this diversification did not occur for reasons of family tradition in production, but also because tobacco production in the region is traditional and safe.

Figure 23: Number of landowners that diversified their business agricultural activities



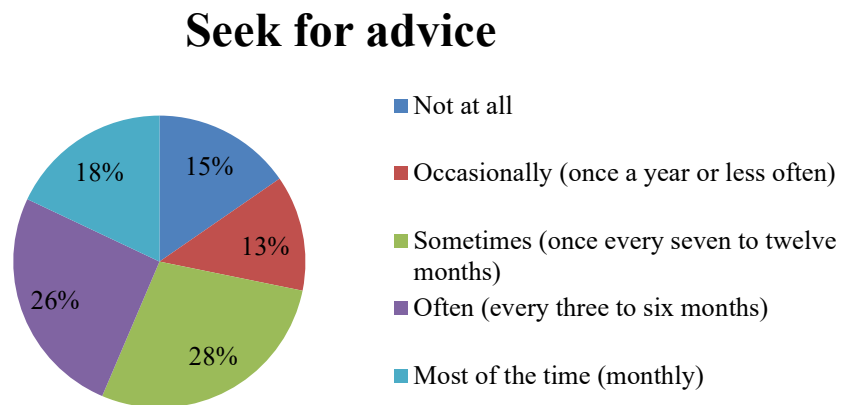
Source: The author (2019).

Morrison *et al.* (2008) defines Business orientation as a way to get behavioral measures of landholders' degree of business orientation. In this research, there is too little or nonexistent business orientation.

4.3.7 Information Seeker

Figure 24 shows the frequency that landowners sought advice from agronomist or government or non-government extension officer. So, 28% sought advice once every seven to twelve months, and 26% answered every three to six months. Therefore, somehow farmers seek information, even if there are displacement cost difficulties.

Figure 24: Frequency that landowner seek advice from a private agronomist/consultant or a government or non-government extension officer



Source: The author (2019).

Table 9 shows what types of media and their usefulness by interviewed. As can see in Table 9, respondents were asked during the last five years did they use any of the following sources of information about farming, and how useful was that information. Radio is the most commonly used source of information (and useful) with a mean of 4.5. Talking to other farmers in general, television shows, and agronomist consultation are other ways to be informed about farming.

Due to the location of rural properties internet access is limited or nonexistent; many properties do not even have a telephone signal, even though they try to be informed.

Table 9: Absolute frequency, percentage and mean of source of information by the landowners

	Never used (1)	Off Little use (2)	Usefull. (3)	Very usefull. (4)	Average (1 - 4)
Jornal	18 (46.15%)	5 (12.82%)	10 (25.64%)	6 (15.38%)	2.1
Rural magazine	31 (79.49%)	0 (0%)	5 (12.82%)	3 (7.69%)	1.5
Printed material provided by the City of Vera Cruz	22 (56.41%)	1 (2.56%)	11 (28.21%)	5 (12.82%)	2.0
Printed material provided by the regions' Tobacco Industry	13 (33.33%)	4 (10.26%)	12 (30.77%)	10 (25.64%)	2.5
Private agronomist/consultant	6 (15.38%)	3 (7.69%)	14 (35.9%)	16 (41.03%)	3.0
Other farmers	1 (2.56%)	2 (5.13%)	17 (43.59%)	19 (48.72%)	3.4
Seed merchants, fertilizer and chemical reps	10 (25.64%)	6 (15.38%)	13 (33.33%)	10 (25.64%)	2.6
Government employees of Vera Cruz	18 (46.15%)	4 (10.26%)	11 (28.21%)	6 (15.38%)	2.1
Specialized employees of the tobacco industry	16 (41.03%)	3 (7.69%)	15 (38.46%)	5 (12.82%)	2.2
professionals and/or students of Unisc	7 (17.95%)	6 (15.38%)	14 (35.9%)	12 (30.77%)	2.8
Internet	19 (48.72%)	2 (5.13%)	3 (7.69%)	15 (38.46%)	2.4
Tv	6 (15.38%)	3 (7.69%)	8 (20.51%)	22 (56.41%)	3.2
Radio	12 (30.77%)	2 (5.13%)	9 (23.08%)	16 (41.03%)	4.5

Source: The author (2019).

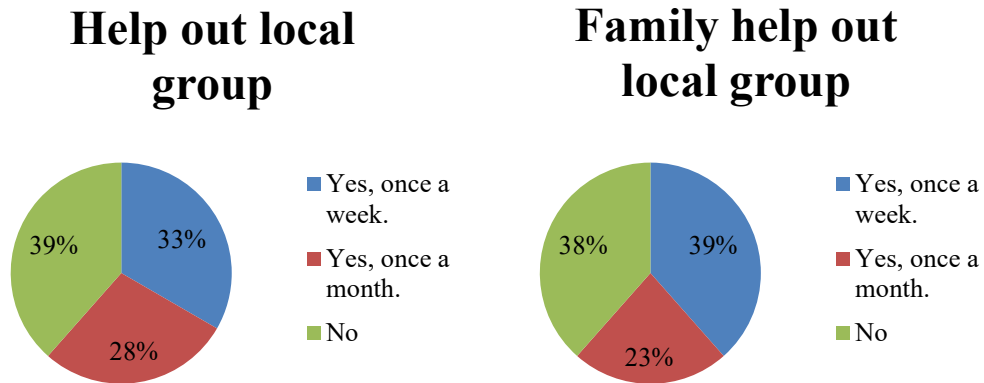
Thus, there is Information seeker as referred by Morrison *et al.* (2008). In his work Information seeker refers to get behavioral measures of landholders' degree of their information seeking. In contrast with Morrison, in this research it cannot be said that this variable is influencing participation in the program. According to Zanella; Schleyer; Speelman. (2014) access to information is the most important explanatory factor for the probability of farmers to join PES schemes.

4.3.8 Connectedness

Figure 25, Figure 26, Figure 27, Figure 28, and Figure 29 reveal the data obtained in the research related to variable Connectedness. Figure 25 shows the percentage of landowners

and their family help out a local group. Around 60% help out or a family member helps out as a volunteer in a local group. It was asked if they attended a local community event in the past 6 months and 72% did. Therefore, the percentage that stated that they relate to local groups is high.

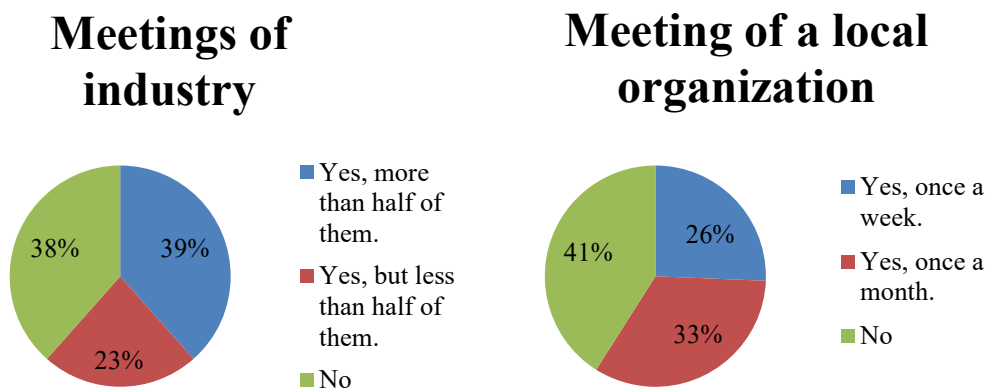
Figure 25: Percentage of landowners and their family helps out a local group



Source: The author (2019).

Figure 26 shows the percentage of landowners that attend meetings of industry and local organization. It shows that 62% attended meeting of their industry group, 59% attended meeting of a local organization or club, but only 34% is on a management committee or organizing committee for any local group or organization. Tobacco industry meetings were widely cited in the interviews, as commented earlier the region is traditionally known for tobacco production. Thus, it is tobacco industry interest of the to hold these meetings.

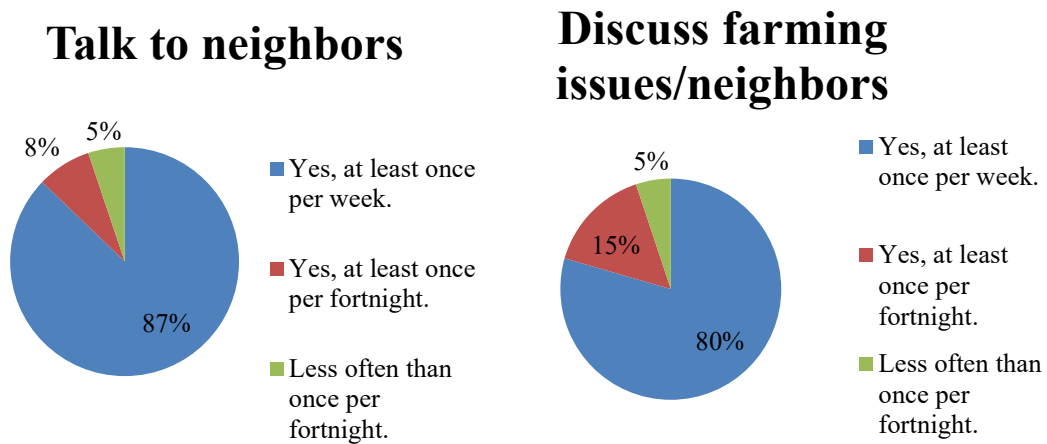
Figure 26: Percentage of landowners that attend meetings



Source: The author (2019).

Figure 27 show the percentage of landowners that talk and discuss farming issues with neighbor. As can be seen in Figure 27, there is a high interaction between the project's neighboring (day-to-day conversations and farming issues conversations). Therefore, even with difficulties of mobility and distance between rural properties, contact and information exchange among the interviewees are important. Several respondents reported that at the end of the day it is normal to meet neighbors to talk and socialize.

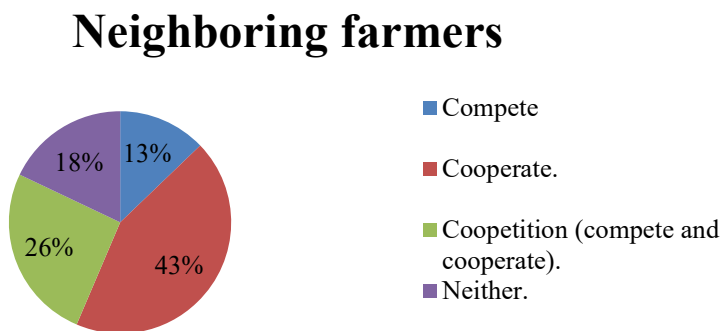
Figure 27: Percentage of landowners that talk and discuss farming issues with neighbors



Source: The author (2019).

When asked if they consider neighboring farmers to be people that you primarily compete with, cooperate with, coepetition with or neither. In other words, when asked how they see the relationship with their neighbors who are also farmers (Figure 28).

Figure 28: Percentage of how landowners consider neighboring farmers



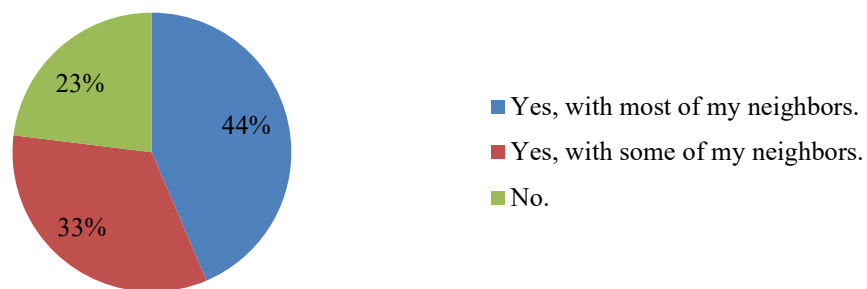
Source: The author (2019).

As can be seen in Figure 28, 43% of respondents answered that their relationship is cooperative, as previously discussed farmers really help each other with everyday problems, or with agriculture. Even so, 26% believe there is a cooperative and competitive relationship at the same time and only 13% reported that the relationship is extremely competitive.

Figure 29 shows the percentage of common interests among neighboring landowners. When asked if they have common interests with landholders that live near them in other words if they thought they were alike in beliefs, attitudes, and behaviors. Thus, 23 % reported no, but 44% reported with most of their neighbors have common interests and 33% reported with some of their neighbor. Even so, the percentage that answered yes is high (Figure 29).

Figure 29: Percentage of common interests among neighboring landowners

Common interests with neighboring landholders



Source: The author (2019).

So there is social connectedness as referred by Morrison *et al.*(2008). In their work, social connectedness has the potential to reduce the costs of information associated with learning. As individuals interact in their daily lives, information is passed on naturally. Therefore, Social connection refers to the connection of a part with other individuals and groups (COGGAN *et al.*, 2015; MORRISON *et al.*, 2008).

In summary, the results of this category, attitude and behavior variables, show that almost 80% trust in the Vera Cruz government and institutions such as City Hall of Vera Cruz. National Water Agency (ANA), and UNISC University received around 90% of support. However, 56% of respondents do not trust the federal government and this corroborates the statement that 35.9% do not support the federal government.

Still on the trust variable, 76% of respondents report that it is okay to participate in this type of program, as long as they continue to manage their properties without interference from the organizations involved.

About satisfaction variable all rates were high and the program achieved its objectives and was well managed. And about profit focus variable, it was noticed that increasing the asset value or net worth of the farm was very important for respondents and how profitable future agricultural activities would be.

The variable of environmental responsibility was the one that gained the most attention in the questionnaire. The three main reasons that they applied for the project was, because, first they wished to lower the environmental impact of their farm, second being part of this kind of project was an opportunity to trial new practices, and third it would be to improve water quality.

And with a mean of 4.8 the respondents would like to leave the land in a better condition than they found it for their successors. Almost 90% agree that managing environmental problems on their farms was a very high priority and more than 94% of the respondents agree to preserve the beauty of the countryside. Respondents reported an awareness of using as little as possible of chemical or fertilizers in general and also there is an awareness of protecting the local native vegetation and remnant vegetation.

When it comes to variable innovator, farmers are open to new ideas and testing new agricultural practices, they discover new ideas by talking to neighbors, and they like to attend expert meetings to find out about new ideas.

About business orientation variable, the interviewed do not have a business plan and if they do, it is not documented or written. Also, they do not use any computer program in the management of rural property, most of them uses notebooks or do not use anything at all. Respondents stated that they have not diversified at all their business activities in the past five years.

About information seeker variable, interviewed reported that they search for advice and in general radio, television shows, and agronomist consultation are ways to be informed about farming.

Concluding with the connectedness variable, interviewed reposted that they or a family member helps out as a volunteer in a local group; they attended industry group meetings and local organization or club meeting. Due to the characteristics of the region there is a great interactivity between neighbors, both to talk about everyday things and about agriculture.

In general, respondents stated that there is greater collaboration than competition between them. Therefore, they stated that generally they all have the same beliefs, attitudes and behavior, thus having common interests.

As previously mentioned, the author used Wunder PES concept that can be defined as: “voluntary transactions between service users and service providers that are conditional on agreed rules of natural resource management for generating offsite services” (WUNDER. 2015, p.241). Therefore, there is a relationship between the Wunder PES and the Water Protector Project concepts. Because all transactions are voluntary, there are two actors (users and providers), the agreed rules for natural resource management are complied with, and it is internalizing offsite externalities.

During interviews the project participants narrated that there is an improvement in the quality and quantity of water, there is a stimulus in the care of water treatment, and the participants receive technical and financial support for the implementation and maintenance of conservation practices. Therefore, through PES. there is a way to reduce externalities.

Next, the last chapter of this dissertation will be presented: final considerations.

5 FINAL CONSIDERATIONS

This research aimed to analyze the personal and demographic characteristics of the landholders and their rural properties that joined the 'Water Protector Project of Vera Cruz / RS', in which thirty-nine formal project participants were interviewed personally by the author. The variables evaluated were socioeconomic characteristics of the respondents and their families, as well as the situational characteristics and attitude and behavior variables such as trust, satisfaction, profit focus, environmental responsibility, innovator, business orientation, information seeker, and connectedness of the landowners

It is concluded that they are small rural families mostly adult and their families have worked with agriculture all their lives, note that all farmers produce basically the same products. The knowledge about agriculture, the region's climate, and the production of tobacco or for family consumption were passed on from generation to generation. As a large part of the participants produce or have already produced tobacco, they are open to new changes, or innovations, and have a high environmental responsibility.

During data collection the author interviewed more women than men, even when men were present in the interviews. It was noted the importance of women from participating families since the beginning of the project, either due to their awareness of water use and preservation or the social connectivity they represent. Women were more active during the interviews, narrating their influence on their families and neighbors to join the project and their work in society and community. Female participation perhaps happened more frequently in this project, because men have a look at agricultural production, and women on other aspects, such as: non-agricultural activities, external income, care for the family and the environment, among so many others.

In terms of attitude and behavior variables, the variables of trust and connectedness stand out. According to the data collected and the conversations with the participants, the confidence in the government of Vera Cruz, ANA, UNISC, and the confidence built with Mr. Gilson stood out in the project. Several participants highlighted how easy it was to contact Mr. Gilson or his team, that their problems or doubts were resolved. The participants narrated that they received periodic visits over the years. Throughout this process, trust only increases, so much so that the number of participants over the years has been increasing.

Through trust in local government and administration became possible to generate governance in this project. Therefore, it can be said that without confidence there cannot be success in the project, nor incentive for participation and involvement of the family of rural

producers. When the project started in 2010 many doubts and untrue information circulated in the region, much of this information due to the farmers' lack of knowledge. The communication performed by the city government together with its partners was fundamental to the success of the project. As narrated by Mr. Gilson, through meetings, lectures and visits to the properties and confidence of some farmer, the project started.

Another important conclusion was the importance of the variable connection. Since it was a new project, at the beginning many farmers were afraid to participate, afraid of losing control over their properties. So first it was necessary to create bonds and trust with some potential participants. And later, these participants came to influence other residents of the region. "Those who were more connected, such as through their involvement in various networks, were also more likely to participate, a point supported more recently in the literature" (MORRISON *et al.*, 2008, p. 80).

As highlighted in this study, the connection of the residents of the region is high, be it for social events, or industry meetings, or simply routine conversations between neighbors. As several interviewees stated, because it is a small region, everyone knows each other or has some family or friendship connection. So, it was through this informal connection that many participants decided to participate in the project. It is also noteworthy that the interviews only took place with the help of this informal connection.

There were some limitations in the research, such as not having interviewed all participants, even though I tried. Another limitation of the research was the extension of the questionnaire, during the interviews the author realized that the questionnaire could have been more succinct and would have obtained the same results. It is suggested for the next researches to analyze the variable trust, as it proved to be important in this research; a sequence of this study would be to deepen the question of farmers' trust with institutions. However, this study does not focus on analyzing the quality and form of participation of farmers, how participative they are and whether they can really have an active role. Perhaps this is a suggestion for other research, to analyze the quality of participation. Thus, there is the possibility of forming a broader and more concrete view of the project.

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APPENDIX A - QUESTIONNAIRE

“Water Protector Project Vera Cruz/Rs”

Projeto Protetor das Águas: Município de Vera Cruz/RS

SOCIOECONOMIC CHARACTERISTICS - CARACTERÍSTICAS SOCIOECONÔMICAS

1. In your rural property. how is the composition of your family. highlight the responsible for the rural property? Name. age. gender. degree of relationship. education level; in the item on education level. please choose an item from the table below Level of Education.

Na sua propriedade rural. como é a composição da sua família. destaque o responsável pela propriedade rural? Nome. idade. sexo. grau de parentesco. escolaridade. no item sobre escolaridade. por favor. escolher um item da tabela abaixo Nível de Escolaridade.

Name	Age	Gender	Retired	Degree of relationship	Education level
R.					

Level of Education (based on the Brazilian Agricultural Census)

Nível de Escolaridade (baseado no Censo Agropecuário Brasileiro)

1	Never attended school. Nunca frequentou escola
2	Literacy class (CA) Classe de alfabetização (CA)
3	Youth and Adult Literacy (AJA) Alfabetização de Jovens e Adultos (AJA)
4	Old Primary (Elementary) Antigo primário (elementar)
5	Old junior (middle cycle 1) Antigo ginásial (médio ciclo 1)
6	Regular of elementary or junior high school Regular do ensino fundamental ou 1º grau
7	Education of young people and adults (EJA) of primary or secondary education of the first degree Educação de jovens e adultos (EJA) do ensino fundamental ou supletivo do 1º grau
8	Old scientific. classic. etc. (middle 2nd cycle) Antigo científico. clássico. etc (médio 2º ciclo)
9	Regular of high school Regular do ensino médio ou 2º grau
10	High school technician Técnico do ensino médio ou do 2º grau
11	Education of young people and adults (EJA) of secondary or secondary education of the

	second degree Educação de jovens e adultos (EJA) do ensino médio ou supletivo do 2º grau
12	Higher Education Superior de graduação
13	Masters or Doctorate Mestrado ou Doutorado
14	Attending daycare Frequentando educação infantil (creche)
15	Attending regular of elementary or junior high school Frequentando Regular do ensino fundamental ou 1º grau
16	Attending regular high school Frequentando Regular do ensino médio ou 2º grau

2. What is the gross monthly income earned on your farm?

Qual é a renda mensal bruta obtida em sua propriedade rural? (Salário mínimo brasileiro R\$ 998.00 - DECRETO Nº 9.661. DE 1º DE JANEIRO DE 2019)

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3. Do you or a member of your family do any work off-farm?

Você ou alguém da sua família exerce algum trabalho fora da sua propriedade rural?

	Yes - Sim
	No – Não – question/questão 11

4. If yes. what do you or they do?

Se afirmativo. o que você ou eles fazem?

--

5. What is the gross monthly income earned by your family from work off-farm?

Qual é a renda mensal bruta obtida por sua família do trabalho fora da sua propriedade rural? (Salário mínimo brasileiro R\$ 998.00 - DECRETO Nº 9.661. DE 1º DE JANEIRO DE 2019)

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SITUATIONAL - SITUACIONAL

6. What is the total size of the property or properties that you manage (ha)?

Qual é o tamanho total da propriedade rural (ou propriedades rurais) que você gerencia (ha)?

--

7. How many hectares of the property or properties that you manage are used for agriculture?

Quantos hectares da propriedade rural ou propriedades rurais que você gerencia são usados para agricultura?

--

8. What do you produce on your property? (highlight the main farming activities)

O que você produz na sua propriedade? (destaque as principais atividades agrícolas)

--

9. How many years have you been working with agriculture?

Há quantos anos você trabalha na agricultura?

--

10. What is your producer status?

Qual é a sua condição de produtor?

	Owner - Proprietário
	Partner - Parceiro
	Squatter - Posseiro
	Leaseholder - Arrendatário de terceiros
	Others - Outros:

11. Do you have a family succession plan in place?

Você tem um plano de sucessão familiar?

	Yes - Sim
	No - Não
	Not Sure - Não tenho certeza

12. Besides yourself, how many people work on your farm with you?

Além de você, quantas pessoas trabalham em sua propriedade rural com você?

	Full time - integral
	Part time – meio turno

13. What year did you join the “Water Protector Project Vera Cruz/RS?”

Em que ano você ingressou no “Projeto Protetor das Águas” de Vera Cruz / RS?

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14. How many hectares of your farm have you applied for the project?

Quantos hectares da sua propriedade rural são dedicados ao projeto?

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15. Please indicate how you define yourself as a landowner/ manager. (check one box only)

Por favor, indique como você se define como proprietário / gerente da propriedade rural? (por favor, assinale apenas uma alternativa)

	I'm a full-time farmer – this is how I make my living and I work on the farm most days. Eu sou um agricultor em tempo integral - é assim que eu ganho a vida e trabalho na minha propriedade rural na maioria dos dias.
	I'm a part-time farmer – I work off farm some of the time and/or a fair proportion of my income come from off-farm sources. Eu sou agricultor de meio período - trabalho fora da minha propriedade rural em parte do tempo e / ou uma boa parte da minha renda vem de fontes não agrícolas.
	I'm a semi-retired farmer. living and/or working on the farm some of the time. Eu sou um agricultor semi-aposentado. moro e / ou trabalho na minha propriedade rural a maior parte do tempo.
	I'm a retired farmer – I live on the land but someone else runs the farm now. Eu sou um agricultor aposentado - moro na terra, mas outra pessoa administra a minha propriedade rural agora.
	I live on the land for the lifestyle – I'm someone who lives on the land, but I don't consider myself a farmer. Eu vivo na terra pelo estilo de vida - sou alguém que mora na terra, mas não me considero agricultor.

Other (please describe) Outro (por favor, descreva):

ATTITUDES AND BEHAVIOURS - ATITUDES E COMPORTAMENTOS

- TRUST - CONFIANÇA

16. What is your level of agreement with the following statements?

Qual é o seu nível de concordância com as seguintes afirmações?

	Strongly disagree. Discordo fortemente.	Disagree. Discordo.	Neither agree nor disagree. Não concordo nem discordo.	Agree. Concordo.	Strongly Agree. Concordo plenamente.
The Vera Cruz government can be trusted. O governo do município de Vera Cruz pode ser confiável.	1	2	3	4	5
The Brazilian government can be trusted. O governo Federal pode ser confiável.	1	2	3	4	5
Generally speaking. other farmers can be trusted. De um modo geral. outros agricultores podem ser confiáveis.	1	2	3	4	5
Generally speaking. most people can be trusted. De um modo geral. a maioria das pessoas pode ser confiável.	1	2	3	4	5

17. Please indicate the extent to which you support or oppose each of the following groups running the “Water Protector Project Vera Cruz/RS. Please circle one number in each row.

Por favor, indique o quanto apóia ou se opõe a cada um dos seguintes grupos que gerenciam o “Projeto Protetor das Águas” de Vera Cruz / RS? Por favor, circule um número em cada linha

	Strongly oppose. Totalmente contrário.	Oppose. Contrário.	Neither support nor oppose. Não apoio ou o contrário.	Support. Apoio.	Strongly support. Apoio totalmente.
City Hall of Vera Cruz Prefeitura Municipal de Vera Cruz/RS	1	2	3	4	5
State government Governo Estadual	1	2	3	4	5
Federal government Governo Federal	1	2	3	4	5
National Water Agency (ANA) Agência Nacional de Águas (ANA)	1	2	3	4	5
Unisc Univesity UNISC	1	2	3	4	5
Tobacco industry Indústria fumageira	1	2	3	4	5

18. Next we'd like to ask a few questions about your attitude towards organizations that are involved in the delivery of the "Water Protector Project Vera Cruz/RS. These include your local government, agencies and university. Please indicate the extent to which you agree with each of the following statements.

Em seguida, gostaríamos de fazer algumas perguntas sobre sua atitude em relação às organizações envolvidas no "Projeto Protetor das Águas" de Vera Cruz / RS. Estas perguntas incluem o governo local, agências e universidade. Por favor, indique até que ponto concorda com cada uma das seguintes afirmações.

	Strongly disagree. Discordo fortemente	Disagree. Discordo	Neither agree nor disagree. Não concordo nem discordo.	Agree. Concordo.	Strongly Agree. Concordo plenamente.
You can trust the organizations involved in delivering these programs to do what is right most of the time. Na maioria das vezes, você pode confiar nas organizações envolvidas na implementação desses programas.	1	2	3	4	5
These programs are run by a few big interests looking out for themselves. Estes programas são geridos por alguns interessados que só pensam neles próprios.	1	2	3	4	5
The people running these programs are smart people who usually know what they are doing. As pessoas que executam esses programas são pessoas inteligentes que geralmente sabem o que estão fazendo.	1	2	3	4	5
These programs waste a lot of taxpayers money. Esses programas desperdiçam muito dinheiro dos contribuintes.	1	2	3	4	5
People like me don't have any say about how these programs are run. Pessoas como eu não têm nada a dizer sobre como esses programas são executados.	1	2	3	4	5
Getting involved with incentive programs is a mistake as it will eventually lead to excess government interference. Envolver-se com programas de incentivo é um erro, pois acabará por levar ao excesso de interferência do governo.	1	2	3	4	5
It's OK to be involved in an incentive program so long as I am still able to manage my farm without interference. Não há problema em participar de um programa de incentivo, desde que eu ainda seja capaz de gerenciar minha propriedade rural sem interferências.	1	2	3	4	5
It's a mistake to get involved with incentive programs because they change and you never know what will happen interference. É um erro envolver-se em programas de incentivo porque eles mudam e você nunca sabe o que vai acontecer com este tipo de interferência.	1	2	3	4	5

19. The following question is also about the organizations involved in delivering the “Water Protector Project Vera Cruz/RS. On the following scale, where ten means you have a very strong trust in these organizations to do what is right and zero means you have a very strong distrust. where would you place yourself? Please circle one number.

A pergunta a seguir também é sobre as organizações envolvidas no programa “Projeto Protetor das Águas” de Vera Cruz / RS. Na escala seguinte, onde dez significa que você tem uma forte confiança nessas organizações para fazer o que é certo e zero significa que você tem uma forte desconfiança, onde você se colocaria? Por favor, circule um número.

Very strong distrust. Não confio nada.				Neither trust or distrust. Não confio ou desconfio.					Very strong trust. Confio muito.
1	2	3	4	5	6	7	8	9	10

- SATISFACTION – SATISFAÇÃO

20. Thinking about the program that you participate in, please indicate the extent to which you agree with each of the following statements. Please circle one number in each row.

Pensando no programa em que você participa, indique até que ponto concorda com cada uma das seguintes afirmações. Por favor, circule um número em cada linha.

	Strongly disagree. Discordo fortemente.	Disagree. Discordo.	Neither agree nor disagree. Não concordo nem discordo.	Agree. Concordo.	Strongly Agree. Concordo plenamente.
The program is beneficial. O programa é benéfico.	1	2	3	4	5
The program achieved its objectives. O programa alcança seus objetivos.	1	2	3	4	5
The rules and requirements for this program were easy to understand. As regras e requisitos para participar deste programa foram fáceis de ser entendidas.	1	2	3	4	5
It is easy to find the right person to contact in the program. É fácil encontrar a pessoa certa para contatar a respeito do programa.	1	2	3	4	5

The program was well administered. O programa foi bem administrado.	1	2	3	4	5
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- PROFIT FOCUS - FOCO NO LUCRO

21. Next, we'd like to ask you some questions about your attitudes to farming priorities in general and about your attitude towards making changes to farming activities. Please indicate the extent to which you agree with each of the following statements. Please circle one number in each row.

Em seguida, gostaríamos de lhe fazer algumas perguntas sobre suas atitudes em relação às prioridades agrícolas em geral e sobre sua atitude em relação a mudanças nas atividades agrícolas. Por favor, indique até que ponto concorda com cada uma das seguintes afirmações. Por favor, circule um número em cada linha.

	Strongly disagree. Discordo fortemente.	Disagree. Discordo.	Neither agree nor disagree. Não concordo nem discordo.	Agree. Concordo.	Strongly Agree. Concordo plenamente.
Farmers should not be distracted by activities that do not involve farming. Os agricultores não devem se distrair com atividades que não envolvem agricultura.	1	2	3	4	5
It is important for me to focus on my main profit making activities. É importante que eu me concentre nas minhas principais atividades lucrativas.	1	2	3	4	5
Increasing the asset value or net worth of the farm is very important to me Aumentar o valor do ativo ou patrimônio líquido da propriedade rural é muito importante para mim.	1	2	3	4	5
A maximum annual return from my property is my most important aim. O lucro anual máximo da minha propriedade rural é o meu objetivo mais importante.	1	2	3	4	5
Expanding the business is very important to me. Expandir o negócio agrícola é muito importante para mim.	1	2	3	4	5
When planning future farming activities I only focus on how profitable they will be. Ao planejar as atividades agrícolas futuras, concentro-me apenas em quão lucrativas elas serão.	1	2	3	4	5

- ENVIRONMENTAL RESPONSIBILITY - RESPONSABILIDADE AMBIENTAL

22. What were the three MAIN reasons why you applied for this project ?(please tick the 3 most important)

Quais foram as três principais razões pelas quais você decidiu participar deste projeto?
(Por favor, assinale as 3 mais importantes)

	I wish to lower the environmental impact of my farm. Desejo diminuir o impacto ambiental das atividades agrícolas na minha propriedade rural.
	I wish to increase production. Eu desejo aumentar a produção agrícola/agropecuária.
	It was an opportunity to trial new practices. Participar do projeto foi uma oportunidade para testar novas práticas agrícolas e/ou ambientais.
	I wish to improve the image of agriculture. Eu quero melhorar a imagem da agricultura.
	“Water Protector Project” activity supported my desire to decrease the use of inputs such as fertilizer and herbicide I use on my farm. O “Projeto Produtor das Águas” apoiou meu desejo de diminuir o uso de insumos como fertilizantes e herbicidas que uso em minha propriedade rural.
	Other farmers spoke of the benefits. Outros agricultores falaram dos benefícios oriundos da participação.
	The “Water Protector Project” money made it financially possible to trial new practices. O dinheiro do “Projeto Produtor das Águas” tornou financeiramente possível testar novas práticas agrícolas e/ou ambientais.
	I wish to avoid potential regulations. Desejo evitar penalidades legais futuras.
	Other (specify) Outro (especificar)

23. Next, we’d like to ask you some questions about your attitudes to farming priorities in general and about your attitude towards making changes to farming activities. Please indicate the extent to which you agree with each of the following statements. Please circle one number in each row.

Em seguida, gostaríamos de lhe fazer algumas perguntas sobre suas atitudes em relação às prioridades agrícolas em geral e sobre sua atitude em relação a mudanças nas atividades agrícolas. Por favor, indique até que ponto concorda com cada uma das seguintes afirmações. Por favor, circule um número em cada linha.

	Strongly disagree. Discordo fortemente.	Disagree. Discordo.	Neither agree nor disagree. Não concordo nem discordo.	Agree. Concordo.	Strongly Agree. Concordo plenamente.
Managing environmental problems on my farm is a very high priority. Gerenciar problemas ambientais na minha propriedade rural é uma prioridade muito alta.	1	2	3	4	5

I preserve the beauty of the countryside. Eu preservo a beleza do campo.	1	2	3	4	5
I am willing to do something about the environmental effects of my farming practices. Estou disposto a corrigir os efeitos ambientais das minhas práticas agrícolas.	1	2	3	4	5
My right to do what I want with my property has to be balanced against wider environmental concerns. O direito de fazer o que eu quero com minha propriedade rural tem que ser equilibrado com preocupações ambientais.	1	2	3	4	5
Most farmers I know try to farm in a way that minimizes environmental damage. A maioria dos agricultores que conheço tenta cultivar de uma forma que minimiza os danos ambientais.	1	2	3	4	5
I would like to leave the land better condition than I found it for my successors. Eu gostaria de deixar a terra em melhores condições do que a encontrei para os meus sucessores.	1	2	3	4	5

24. Please indicate the extent to which you follow each of these practices when using chemicals and/or fertilizer. If you do not use chemicals and/or fertilizer on your property go to next question.

Por favor, indique até que ponto você segue cada uma dessas práticas ao usar produtos químicos e / ou fertilizantes. Se você não usa produtos químicos e / ou fertilizantes em sua propriedade, vá para a próxima pergunta.

	Not at all. De modo algum.	Occasionally. Ocasionalmente.	Some of the time. Algumas vezes.	Most of the time. A maior parte do tempo.	All of the time. Todo o tempo.
I attempt to store and handle chemicals for environmental safety. Esforço-me para armazenar e manusear produtos químicos tendo em vista a segurança ambiental.	1	2	3	4	5
I attempt to minimise overspray. Esforço-me para minimizar o excesso de aplicação.	1	2	3	4	5
I dispose my chemical containers in a proper manner. Descarto os meus recipientes de produtos químicos de uma maneira adequada.	1	2	3	4	5

I attempt to keep up to date about chemical use. Tento manter-me atualizado sobre o uso de produtos químicos.	1	2	3	4	5
I only apply the amount of fertiliser that will be taken up by my crops/plants. Aplico apenas a quantidade de fertilizante que será absorvida pelas minhas plantas.	1	2	3	4	5

25. What percentage of your farm is currently covered in local native vegetation? (including vegetation you have planted and remnant vegetation)

Qual porcentagem de sua propriedade rural atualmente está coberta de vegetação nativa (incluindo a vegetação que você plantou e a vegetação remanescente)

	0%
	1 – 10%
	10 – 20 %
	20 – 30%
	More 30% (mais de 30%)

26. What percentage of your farm is currently covered in remnant vegetation (this is vegetation that you have NOT planted)?

Qual a porcentagem de vegetação remanescente em sua propriedade rural atualmente (esta é a vegetação que você NÃO plantou)?

	0%
	1 – 10%
	10 – 20 %
	20 – 30%
	More 30% (mais de 30%)

27. What proportion of your farm would you like to have covered in local native vegetation in:

Qual a proporção de vegetação nativa você gostaria de ter em sua propriedade rural em:

10 years time? 10 anos?	_____ %
50 years time? 50 anos?	_____ %

- INNOVATOR – INOVADOR

28. Next, we'd like to ask you some questions about your attitudes to farming priorities in general and about your attitude towards making changes to farming activities. Please indicate the extent to which you agree with each of the following statements. Please circle one number in each row.

Em seguida, gostaríamos de lhe fazer algumas perguntas sobre suas atitudes em relação às prioridades agrícolas em geral e sobre sua atitude em relação a mudanças nas atividades agrícolas. Por favor, indique até que ponto concorda com cada uma das seguintes afirmações. Por favor, circule um número em cada linha.

	Strongly disagree. Discordo fortemente.	Disagree. Discordo.	Neither agree nor disagree. Não concordo nem discordo.	Agree. Concordo.	Strongly Agree. Concordo plenamente.
Financially, I can afford to take a few risks and experiment with new ideas. Financeiramente, posso me dar ao luxo de correr alguns riscos e experimentar novas idéias.	1	2	3	4	5
I enjoy doing things that are innovative, even if other farmers might be unlikely to do them. Eu gosto de fazer coisas inovadoras, mesmo que seja improvável que outros agricultores as façam.	1	2	3	4	5
Low prices and high costs means that I have little money left to experiment with new ideas. Preços baixos e altos custos significam que tenho pouco dinheiro para experimentar novas idéias.	1	2	3	4	5
I mostly find out about new ideas by talking with other farmers. Eu descubro novas idéias conversando com outros agricultores.	1	2	3	4	5
I like to attend meetings with farm advisors to find out about new ideas. Eu gosto de participar de reuniões com extensionistas para descobrir novas idéias.	1	2	3	4	5
I find it tiring just to think about new farm improvements. Acho cansativo pensar em novas melhorias agrícolas.	1	2	3	4	5
I like to read information about new products and technologies. Eu gosto de ler e obter informações sobre novos produtos e tecnologias.	1	2	3	4	5
I am open to new ideas and alternatives about farming. Estou aberto a novas idéias e alternativas sobre agricultura.	1	2	3	4	5
I am willing to try new things. Estou disposto a tentar coisas novas.	1	2	3	4	5
Knowing about new technology is important to me. Saber sobre novas tecnologias é importante para mim.	1	2	3	4	5

I try to use new technology as often as I am able. Eu tento usar novas tecnologias sempre que posso.	1	2	3	4	5
---	---	---	---	---	---

- BUSINESS ORIENTATION - ORIENTAÇÃO EMPRESARIAL

29. Do you have a business plan for your farm business?

Você tem um plano de negócios para sua propriedade rural?

	NO. Não.
	Yes. in my head. Sim. na minha cabeça.
	Yes. written down. but it is fairly basic. Sim. escrito. mas é bem básico.
	Yes. written down. but needs more work. Sim. escrito. mas precisa de mais trabalho.
	Yes. written down. and it's complete and up to date. Sim. escrito. e está completo e atualizado.

30. Do you (or your spouse/business partner) use any computer-based programs as part of your farm business? (Internet. Word. Excel...)

Você (ou seu cônjuge / parceiro de negócios) usa algum programa de computador na gestão da sua propriedade rural? (Internet. Word. Excel...)

--

31. What system of recording your farm activities do you use? (diary paper. computer. software..)

Qual tipo de anotação ou controle você usa para a gestão das atividades da sua propriedade rural? (cardeneta. computador. software específico....)

--

32. Do you make use of any of the following instruments? Please tick all that apply

Você faz uso de algum dos seguintes tipos de instrumentos? Por favor. marque todos que se aplicam

	None - Nenhum
	GPS
	Irrigation scheduling software - programa de controle de irrigação
	Climate forecasting software – programa de previsão do tempo
	Google maps. Mapas do Google
	Others. specify – Outro especifique.

33. During the past five years have you diversified your business activities in any of the following ways? Tick all that apply

Nos últimos cinco anos. você diversificou suas atividades comerciais de alguma das seguintes maneiras? Marque todos que se aplicam.

	Substantially altered on-farm production in response to changes in market prices or environmental conditions (eg substantially changed crops or livestock produced). Alterei a produção agrícola em resposta a mudanças dos preços de mercado ou condições ambientais (por exemplo. mudança de cultura ou produção de gado)
	Started a new business activity that is not conducted on your farm but is related to farming. Iniciei uma nova atividade comercial que não é gerida na da minha propriedade rural. mas está relacionada à agricultura.
	Started a new business activity that is not conducted on your farm and is not related to farming. Iniciei uma nova atividade comercial que não é gerida na minha propriedade rural. e não está relacionada à agricultura.
	I have not diversified at all. Eu não diversifiquei.
	Other (specify) Outro (especificar)

- INFORMATION SEEKER - BUSCADOR DE INFORMAÇÃO

34. How often do you seek advice from a private agronomist/consultant or a government or non-government extension officer? Tick one box only

Com que frequência você procura orientação de um agrônomo / consultor particular ou extensionista? Assinale apenas uma caixa

	Not at all Nenhuma vez
	Occasionally (once a year or less often) Ocasionalmente (uma vez no ano ou menos ainda)
	Sometimes (once every seven to twelve months) Às vezes (uma vez a cada sete a doze meses)
	Often (every three to six months) Muitas vezes (a cada três a seis meses)
	Most of the time (monthly) Na maioria das vezes (mensalmente)

35. During the last five years did you use any of the following sources of information about farming. and how useful was that information? Please circle one number in each row

Durante os últimos cinco anos. você usou alguma das seguintes fontes de informação sobre agricultura e quão útil foi essa informação? Por favor. circule um número em cada linha.

Source of information		Used and value Information Usado e valor de informação			
		Nerver used Nunca Usado	Off little use Pouco uso	Usefull Útil	Very useful Muito útil
print media	Newspapers Jornal	1	2	3	4
	Rural magazine Revista Rural	1	2	3	4
	printed material provided by the City of Vera Cruz material impresso fornecido pela Prefeitura Municipal de Vera Cruz	1	2	3	4
	Printed material provided by the region's Fumageira Industry material Impresso fornecido pela Indústria Fumageira da região	1	2	3	4
people	Private agronomist/consultant Agrônomo / consultor privado	1	2	3	4
	Other farmers Outros produtores agrícolas	1	2	3	4
	Seed merchants, fertiliser and chemical reps Comerciantes de sementes, fertilizantes e representantes da indústria	1	2	3	4
	government employees of Vera Cruz funcionários da Prefeitura Municipal de Vera Cruz	1	2	3	4
	specialized employees of the tobacco industry funcionários especializados da indústria fumageria	1	2	3	4
	professionals and / or students of Unisc University profissionais e ou alunos da Universidade (Unisc)	1	2	3	4
Electronic Media	Internet Internet	1	2	3	4
	Tv televisão	1	2	3	4
	Radio rádio	1	2	3	4

- CONNECTEDNESS - CONECTIVIDADE

36. Do you help out a local group (eg landcare group. Farmers assoc. sporting group. church group) as a volunteer?

Você ajuda algum grupo local (por exemplo. grupo de preservação ambiental. agricultores. grupo esportivo ou grupo da igreja) como voluntário?

	Yes. once a week. Sim. uma vez na semana.
	Yes. once a month. Sim. uma vez no mês.
	No Não

37. Do members of your family help out a local group (eg landcare group. Farmers assoc. sporting group. church group) as a volunteer?

Membros da sua família ajudam algum grupo local (por exemplo. grupo de preservação ambiental. agricultores. grupo esportivo ou grupo da igreja) como voluntário?

	Yes. once a week. Sim. uma vez na semana.
	Yes. once a month. Sim. uma vez no mês.
	No Não

38. Have you attended a local community event in the past 6 months (eg church fete. school concert)?

Você participou de um evento da comunidade local nos últimos 6 meses (por exemplo. festa da igreja. evento da escola)?

	Yes. Sim.
	No Não

39. Do you attend meetings of your industry group?

Você participa de reuniões do seu grupo da indústria?

	Yes. more than half of them. Sim. mais da metade deles.
	Yes. but less than half of them. Sim. mas menos da metade deles.
	No Não

40. Do you attend meetings of a local organization or club (eg landcare group. Farmers assoc. sporting group. church group)?

Você participa de reuniões de uma organização ou clube local (por exemplo. sindicato. grupo de preservação ambiental. associações de agricultores. grupo esportivo ou da igreja)?

	Yes. once a week. Sim. uma vez na semana.
	Yes. once a month. Sim. uma vez no mês.
	No Não

41. Are you on a management committee or organizing committee for any local group or organization?

Você participa da direção de algum grupo ou organização local?

	Yes. Sim.
	No Não

42. How often do you talk to your neighbors? Please tick

Quantas vezes você fala com seus vizinhos? Por favor, assinale uma das alternativas:

	Yes. at least once per week. Sim. pelo menos uma vez na semana.
	Yes. at least once per fortnight. Sim. pelo menos uma vez por quinzena.
	Less often than once per fortnight.

	Menos que uma vez por quinzena.
--	---------------------------------

43. How often do you discuss farming issues with your neighbors?

Com que frequência você discute questões agrícolas com seus vizinhos?

	Yes. at least once per week. Sim. pelo menos uma vez na semana.
	Yes. at least once per fortnight. Sim. pelo menos uma vez por quinzena.
	Less often than once per fortnight. Menos que uma vez por quinzena.

44. Do you consider neighboring farmers to be people that you primarily compete with, cooperate with, or neither? Please tick one box.

Você considera os vizinhos da sua propriedade rural como pessoas com as quais você compete, coopera, compete e coopera ou nenhum? Por favor, marque uma alternativa.

	Compete Compete.
	Cooperate. Coopera.
	Coopetition (compete and cooperate). Coopetição (compete e coopera).
	Neither. Nenhum.

45. Do you find that you have common interests with landholders who live near you? Please tick one box.

Você acha que tem interesses em comum com proprietários rurais que moram perto de você? Por favor, marque uma alternativa.

	Yes. with most of my neighbors. Sim. com a maioria dos meus vizinhos.
	Yes. with some of my neighbors. Sim. com alguns dos meus vizinhos.
	No. Não

OTHER COMMENTS:

If you have any other comments, such as changes you would like to see made to existing programs, please make them on the back cover.

Thank you for completing this survey! We value your opinions. The information that you are providing will influence the way that incentive programs are developed for landholders in your area.

OUTROS COMENTÁRIOS:

Se você tiver outros comentários, por exemplo, algum tipo de alteração no programa que gostaria de sugerir, por favor, exponha.

Obrigado por completar esta pesquisa! Nós valorizamos suas opiniões. As informações que você fornecerá influenciarão a forma como os programas de incentivo são desenvolvidos para os proprietários rurais em sua área.

ANNEX A



ESTADO DO RIO GRANDE DO SUL

MUNICÍPIO DE VERA CRUZ

CONTRATO Nº
DE ADESÃO AO PROGRAMA PROTETOR DAS ÁGUAS DE VERA CRUZ

MUNICÍPIO DE VERA CRUZ, pessoa jurídica de direito público, inscrita no CNPJ sob nº _____, com endereço na _____, Vera Cruz, RS, neste ato representado pela sua Prefeita Municipal, Sra. _____ brasileira, casada, professora, inscrita no CPF sob nº _____, RG sob nº _____ SSP/RS, com endereço profissional na cidade de Vera Cruz, doravante de nominado **MUNICÍPIO** e _____ brasileiro, agricultor, RG _____, CPF _____, inscrição no INSS _____, residente e domiciliado em _____, Vera Cruz, RS, Telefone _____, com conta-corrente _____, mantida no Banco do Brasil, agência: _____, doravante denominado **AGRICULTOR**.

1. CONSIDERAÇÕES

1.1. **CONSIDERANDO** que o Município de Vera Cruz, com o apoio do Comitê Gestor, executa o Programa de Recuperação de Nascentes da Sub-bacia do Arroio Andréas, Bacia Hidrográfica do Rio Pardo, o qual consiste na proteção de recursos hídricos na Sub-bacia do Arroio Andréas, bacia hidrográfica de Rio Pardo, no município de Vera Cruz, Estado do Rio Grande do Sul, com o escopo de proteger as nascentes e áreas ripárias da referida sub-bacia, visando garantir a preservação dos mananciais hídricos mediante o pagamento aos agricultores pelo fornecimento de serviços ambientais de proteção das nascentes e áreas ripárias que se situam em suas propriedades.

1.2. Que o AGRICULTOR declara ser o legítimo possuidor e/ou proprietário do imóvel rural matriculado no Registro de Imóveis da Comarca de Santa Cruz do Sul sob nº da matrícula _____ às fls. _____, o qual se localiza no Município de Vera Cruz, no Estado do Rio Grande do Sul, com uma área total de _____ hectares.

1.3. Que o AGRICULTOR, também, possui os poderes necessários para firmar o presente Termo de Adesão, assumindo compromissos e obrigações, e que o imóvel se encontra livre de todo e qualquer gravame e em dia com o pagamento das contribuições/tributos federais, estaduais e municipais.

1.4. Que o AGRICULTOR foi devidamente esclarecido sobre o objeto do referido Programa, aderindo de forma espontânea aos seus objetivos;

1.5. Que o AGRICULTOR, em razão do objeto do Programa, tem ciência de que a adesão é irrevogável e irretroatável;

1.6. Que o AGRICULTOR tem ciência de que o presente termo obriga as partes, seus herdeiros e/ou sucessores, cessionários ou arrendatário, e se compromete a, em havendo transferência de posse e/ou de propriedade, esclarecer os termos do presente instrumento ao adquirente/cessionário/arrendatário.

As partes resolvem firmar o presente instrumento, mediante as cláusulas e condições que seguem.

CLÁUSULA PRIMEIRA – DO OBJETO

1.1 O presente instrumento tem por objeto zelar e proteger a área de terras de propriedade do AGRICULTOR, na qual são executadas ações de recuperação de nascentes da Sub-bacia do Arroio Andréas, Bacia Hidrográfica do Rio Pardo, RS

Subcláusula única. Deve o AGRICULTOR proteger a área onde se executa o



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programa da ação do fogo, depredação por animais e terceiros, exercendo o papel de guardião das ações empreendidas em sua propriedade, auxiliando e informando a equipe técnica do referido Programa.

CLÁUSULA SEGUNDA – DAS OBRIGAÇÕES DO MUNICÍPIO

- 2.1. Executar todas as atividades previstas no cronograma de atividades, descritas no **Anexo I**, prestando assistência indispensável ao acompanhamento do Projeto.
- 2.2. Efetuar pagamento ao AGRICULTOR, observadas as condições do contrato de recuperação de nascentes mediante pagamento por serviços ambientais (PSA) na Sub-bacia do Arroio Andréas – bacia hidrográfica do Rio Pardo.

CLÁUSULA TERCEIRA – DAS OBRIGAÇÕES DO AGRICULTOR

- 3.1. Permitir a execução e também executar as atividades contempladas no Cronograma de Atividades a serem efetuadas em área de terras abrangida pelo Programa, situada no seu imóvel, com a colaboração e assessoria do Município, ou de quem este indicar.
- 3.2. Permitir, sempre que solicitado pelo MUNICÍPIO, o acesso de pessoas integrantes do Comitê Gestor do Programa, ou por ele indicadas, à sua propriedade, com o objetivo de desenvolver as atividades relacionadas ao programa.
- 3.3. Permitir e executar atividades de cercamento da área abrangida pelo programa;
- 3.4. Manter e melhorar as nascentes e áreas ripárias existentes no interior da sua propriedade, de acordo com a avaliação realizada pelo MUNICÍPIO;
- 3.5. Zelar pelas ações executadas na sua propriedade, protegendo a área contra a ação do fogo, depredação por animais e/ou terceiros.
- 3.6. Exercer papel de guardião das ações executadas em sua propriedade, informando e auxiliando a equipe técnica do Programa no controle eficaz e correto das principais pragas e ameaças, especialmente no caso de prejuízo iminente das atividades implantadas.
- 3.7. Executar o Programa, sob supervisão do MUNICÍPIO, de acordo com o descrito no Anexo I e informar aos representantes do MUNICÍPIO sobre quaisquer atrasos ou atividades realizadas em desacordo com o objeto do Programa.
- 3.8. Cumprir com as normas relativas à proteção ambiental e à biodiversidade.
- 3.9. Participar, quando devidamente convocado e instruído, dos seminários oferecidos pelo Programa.

CLÁUSULA QUARTA – DOS PAGAMENTOS

- 4.1. Pela execução do objeto do Programa, com a adoção/implantação das práticas descritas no cronograma de atividades (Anexo I do contrato original), o MUNICÍPIO paga ao AGRICULTOR o montante a ser determinado em base de cálculo para o Pagamento por Serviços Ambientais, sendo este valor definido em comum acordo entre os proponentes e o Comitê Gestor do Projeto.
- 4.2. O pagamento ocorre de acordo com as etapas concluídas, de forma anual, mediante aprovação do Comitê Gestor do Projeto, conforme relatório de despesa (Anexo II do contrato original);
- 4.3. O valor total descrito acima pode sofrer alteração, para mais ou para menos, de acordo com o relatório de despesa apresentado;
- 4.4. O pagamento pode ser suspenso caso seja constatada, através de descrição formal, o descumprimento de alguma das obrigações do AGRICULTOR acima estabelecidas, especialmente aquelas que prejudiquem o objeto do Programa;
- 4.5. O pagamento é efetuado em conta-corrente do AGRICULTOR, conforme documento/informações bancárias indicadas por ele;
- 4.6. Os valores a serem pagos são calculados considerando somente a área que o



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AGRICULTOR disponibiliza para fins de execução do objeto do Programa. Para fins de cálculo, são considerados:

- a) valor de participação/incentivo: R\$ 200,00 (duzentos reais) por ano civil;
- b) para cada hectare que o produtor disponibilizar; R\$ 325,00 (trezentos e vinte e cinco reais) podendo ser considerada também a fração da área, por ano civil;
- c) o somatório das variáveis supradescritas compõe o valor bruto de R\$ 1.046,35 reais (um mil, quarenta e seis reais e trinta e cinco centavos), de cujo valor deverá ser deduzido os encargos legais, de imposto de renda e INSS, desde que atendidos os termos acordados entre as partes, visando-se, sempre, a perfeita execução do objeto do Programa.
- d) isenção da tarifa básica de água (até 15m³/mês) fornecida pelo SEMAE (Serviço Municipal de Água e Esgoto);

CLÁUSULA QUINTA – DA DOTAÇÃO ORÇAMENTÁRIA

As despesas decorrentes do presente contrato correrão à conta da dotação orçamentária:

ÓRGÃO: 0800 – SECRETARIA MUNICIPAL DE DESENVOLVIMENTO RURAL E MEIO-AMBIENTE

UNIDADE ORÇAMENTÁRIA: 0805 – Fundo Municipal de Pagamento por Serviços Ambientais

0805.1854100472.095 – Manutenção dos Serviços de Proteção Ambiental

3.3.90.36 – Outros Serviços de Terceiros – Pessoa Física

CLÁUSULA SEXTA – DA VIGÊNCIA E RESCISÃO

6.1. O presente Termo de Adesão entra em vigor da data de sua assinatura, vigendo por 12 meses, podendo ser prorrogado por iguais períodos até o prazo limite de 60 meses, se os serviços estiverem sendo prestados a contento.

6.2. O MUNICÍPIO pode rescindir o Termo de Adesão unilateralmente, mediante notificação prévia de 30 (trinta dias), ao AGRICULTOR, sem que caiba a este qualquer indenização.

6.3. Em razão do alto valor social do objeto do Programa o AGRICULTOR, como já expendido precedentemente, não pode rescindir o presente Termo unilateralmente; contudo, em havendo justo motivo, aceito pelo Comitê Gestor, pode haver a rescisão, mantendo-se vigentes as condições contratadas até o encerramento do ano civil em que ocorreu o pagamento.

CLÁUSULA SÉTIMA – DA RELAÇÃO ENTRE AS PARTES

7.1. Não se estabelece, por força deste instrumento, qualquer vínculo empregatício entre as Partes;

7.2. O AGRICULTOR, além do pagamento estabelecido na cláusula quarta, retro, nada pode exigir em decorrência deste Contrato.

CLÁUSULA OITAVA - DA CONTINUIDADE DO CONTRATO E DAS OBRIGAÇÕES

A fim de garantir a execução do Programa, as partes concordam que, caso a propriedade ou posse do imóvel acima seja transferida a terceiro(s) durante a vigência deste Termo de Adesão, as obrigações nele assumidas também são transferidas a quem passe a ser o novo proprietário ou possuidor, salvo decisão do Comitê Gestor em contrário.

CLÁUSULA NONA - FISCALIZAÇÃO DO CONTRATO

9.1 Os serviços constantes neste contrato serão fiscalizados pelo servidor Gilson Becker, doravante denominada Fiscal, que terá autoridade para exercer, em seu



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nome, toda e qualquer ação de orientação geral, controle e fiscalização da execução contratual.

9.2 Ao Fiscal compete, entre outras atribuições:

I - solicitar ao AGRICULTOR, ou obter da Administração, tempestivamente, todas as providências necessárias ao bom andamento da execução deste contrato e anexar aos autos do processo correspondente cópia dos documentos escritos que comprovem essas solicitações de providências;

II - verificar a conformidade da execução contratual com as normas especificadas e se os procedimentos e materiais empregados são adequados para garantir a qualidade desejada dos aparelhos;

III - ordenar ao AGRICULTOR corrigir, refazer ou reconstruir as partes dos serviços executadas com erros, imperfeições ou em desacordo com as especificações;

IV - atestar o recebimento do objeto contratual;

CLÁUSULA DÉCIMA – DOS TRIBUTOS E DEMAIS ENCARGOS

O AGRICULTOR reconhece que é responsável por todas e quaisquer encargos e tributos decorrentes do pagamento, bem como, pelo cumprimento de todas e quaisquer disposições e exigências emanadas da legislação tributária aplicável.

CLÁUSULA DÉCIMA PRIMEIRA – DA FUNDAMENTAÇÃO LEGAL

O presente contrato é fundamentado na Lei Municipal nº 4.195/2015, que concede isenção do pagamento da tarifa de água e Lei Municipal nº 4.264/2015, que cria o Programa Municipal de Pagamento por Serviços Ambientais no Município de Vera Cruz.

CLÁUSULA DÉCIMA SEGUNDA – DO FORO

As partes elegem o Foro da cidade de Vera Cruz, RS, para dirimir qualquer controvérsia que possa advir da assinatura e/ou implementação do presente.

E assim, por estarem justas e contratadas, as partes firmam o presente, em três vias de igual valor, teor e forma.

Vera Cruz, RS, 09 de DEZEMBRO de 2016.

ROSANE TORNQUIST PETRY
Prefeita Municipal de Vera Cruz, RS

Agricultor

Rosemara Klafke Hoppe
OAB nº 29130

ANNEX B**LEI Nº 4.264, DE 01 DE DEZEMBRO DE 2015.**

Institui a Política Municipal de Pagamento por Serviços Ambientais, cria o Programa Municipal de Pagamento por Serviços Ambientais e o Fundo Municipal de Pagamento por Serviços Ambientais e dá outras providências.

ROSANE TORNQUIST PETRY, Prefeita Municipal de Vera Cruz, Estado do Rio Grande do Sul.

Faço saber, que o Poder Legislativo aprovou e eu sanciono a Lei seguinte:

Art. 1º Esta Lei institui a Política Municipal de Pagamento por Serviços Ambientais (PMPSA), cria o Programa Municipal de Pagamento por Serviços Ambientais (PROMPSA) e o Fundo Municipal de Pagamento por Serviços Ambientais (FMPSA).

Art. 2º Para os fins desta Lei, consideram-se:

I - Ecossistemas: unidades espacialmente delimitadas, caracterizadas pela especificidade das inter-relações entre os fatores bióticos e abióticos;

II - Serviços ecossistêmicos: condições e processos gerados pelos ecossistemas que resultam em condições adequadas à sadia qualidade de vida, nas seguintes modalidades:

a) Serviços de provisão: os que fornecem diretamente bens ou produtos ambientais utilizados pelo ser humano para consumo ou comercialização;

b) Serviços de suporte: os que promovem a ciclagem de nutrientes, a decomposição de resíduos, a produção, a manutenção ou a renovação da fertilidade do solo, a polinização, a dispersão de sementes, o controle de populações de potenciais pragas e de vetores potenciais de doenças humanas, a proteção contra a radiação solar ultravioleta, a manutenção da biodiversidade e do patrimônio genético, entre outros que mantenham a perenidade da vida na Terra;

c) Serviços de regulação: os que promovem o sequestro de carbono, a purificação do ar, a moderação de eventos climáticos extremos, a manutenção do equilíbrio do ciclo hidrológico, a minimização das enchentes e das secas, e o controle dos processos críticos de erosão e de deslizamentos de encostas, entre outros que concorram para a manutenção da estabilidade dos processos ecossistêmicos;

d) Serviços culturais: os que proveem benefícios recreacionais, estéticos, espirituais ou outros benefícios não materiais à sociedade humana.

I - Serviços ambientais: atividades humanas de preservação, manutenção, restabelecimento, recuperação e melhoria dos ecossistemas que contribuem de forma direta, verificável e eficaz para a geração de serviços ecossistêmicos;

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II - Provedor: pessoa física ou jurídica que executa serviços ambientais;

III - Pagador: agente público ou privado que realiza os pagamentos condicionados aos provedores, diretamente ou através de intermediário;

IV - Intermediário: agente público ou privado que desempenha atividades de desenvolvimento, gestão, pesquisa, consultoria, intermediação ou qualquer outra atividade relacionada a programas de serviços ambientais;

V - Pagamento por serviços ambientais: transação contratual mediante a qual um beneficiário ou usuário de serviços ecossistêmicos transfere, diretamente ou através de intermediário, recursos financeiros ou outra forma de remuneração a um provedor desses serviços, nas condições acertadas, respeitadas as disposições legais e regulamentares pertinentes;

Art. 3º São objetivos da Política Municipal de Pagamento por Serviços Ambientais:

I - Promover a conservação de importantes fragmentos da mata atlântica existentes no território municipal, bem como a restauração de áreas degradadas, por meio da criação de incentivos econômicos e fiscais para geração de serviços ambientais;

II - Estimular a conservação dos ecossistemas, do solo, dos recursos hídricos, da biodiversidade, do patrimônio genético e do conhecimento tradicional associado;

III - Valorizar, econômica, social e culturalmente os serviços ecossistêmicos;

IV - Reconhecer iniciativas individuais e coletivas que favoreçam a manutenção, a recuperação e ou o melhoramento dos serviços ecossistêmicos por meio de remuneração financeira ou outra forma de incentivo econômico;

V - Contribuir para o desenvolvimento territorial em bases sustentáveis, fomentando o estabelecimento de cadeias produtivas baseadas no respeito a integridade dos valores ambientais e culturais das populações;

VI - Promover alternativas de trabalho e renda para populações em situação de vulnerabilidade socioeconômica;

VII - Incentivar a geração de serviços ecossistêmicos produzidos pela conservação das matas nativas e restauração florestal no território municipal, transformando os mesmos em ativos para clientes nacionais e internacionais, remunerando as unidades família e proprietários rurais responsáveis pela manutenção desses serviços.

Art. 4º São princípios da Política Municipal de Pagamento por Serviços Ambientais:

I – O princípio do direito humano fundamental ao meio ambiente ecologicamente equilibrado;

II – O princípio do desenvolvimento sustentável;

III – Os princípios da participação e da informação;

IV – Os princípios do provedor-recebedor, do poluidor-pagador e do usuário-pagador;

V – Os princípios da precaução, da prevenção e da reparação.

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Art. 5º A Política Municipal de Pagamento por Serviços Ambientais tem as seguintes diretrizes:

I - A implantação do Programa Municipal de Pagamento por Serviços Ambientais em áreas prioritárias para a conservação e de maior risco socioambiental;

II - A formação, melhoria e manutenção de corredores ecológicos para a conectividade de áreas naturais;

III - As atividades de manutenção e de recuperação das Áreas de Preservação Permanente, de Reserva Legal, de uso restrito ou de imóveis rurais situados em unidades de conservação são elegíveis para quaisquer pagamentos ou incentivos por serviços ambientais, configurando adicionalidade para fins de mercados nacionais e internacionais de reduções de emissões certificadas de gases de efeito estufa.

IV - O Programa Municipal de Pagamento por Serviços Ambientais deve se integrar os sistemas em âmbito nacional e estadual, objetivando a criação de um mercado de serviços ambientais.

V - O pagamento ou incentivo a serviços ambientais serão prioritariamente destinados aos agricultores familiares como definidos no inciso V do art. 3º da Lei Federal nº 12.651/12.

VI - O aprimoramento constante dos métodos de monitoramento, verificação, avaliação e certificação dos serviços ambientais que sejam susceptíveis de serem remunerados nos termos desta Lei e de seu Regulamento;

VII - A articulação institucional com órgãos e entidades governamentais, instituições financeiras, instituições públicas e privadas de ensino técnico e superior, empresas e o Terceiro Setor com vistas ao financiamento, execução e aprimoramento do Programa Municipal de Pagamento por Serviços Ambientais.

Art. 6º São instrumentos da Política Municipal de Pagamento por Serviços Ambientais:

I - Programa Municipal de Pagamento por Serviços Ambientais;

II - Projetos privados de pagamento por serviços ambientais executados no território municipal;

III - Captação, gestão e transferência de recursos, monetários ou não, públicos ou privados, dirigidos ao pagamento por serviços ambientais;

IV - Incentivos econômicos para a conservação de matas nativas, restauração florestal e recuperação de áreas degradadas mediante a implantação de Sistemas Agroflorestais (SAF), dentre outras modalidades:

a) Pagamento em dinheiro;

b) Selos, certificações e premiações;

c) Assistência técnica e extensão rural;

d) Fornecimento de sementes e mudas de espécies nativas;

e) Fornecimento de insumos e mão de obra.

V - Incentivos fiscais para o desenvolvimento de atividades relacionadas ao Programa Municipal de Pagamento por Serviços Ambientais;

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- VI - Assistência técnica e capacitação voltadas à promoção de serviços ambientais;
- VII - Inventário de áreas potenciais para a implantação de projetos de pagamento por serviços ambientais;
- VIII - Cadastro Municipal de Pagamento por Serviços Ambientais.

Art. 7º Fica criado o Programa Municipal de Pagamento por Serviços Ambientais (PROMPSA) com o objetivo de implementar, no âmbito do Município, o pagamento das atividades humanas de preservação, manutenção, restabelecimento, recuperação e melhoria dos ecossistemas que geram serviços ecossistêmicos.

Art. 8º São requisitos gerais para a participação no PROMPSA:

- I - Habilitação em projeto específico de implantação do enquadramento por atividades humanas de preservação, manutenção, restabelecimento, recuperação e melhoria dos ecossistemas que geram serviços ecossistêmicos.
- II - Comprovação do uso ou ocupação regular do imóvel a ser contemplado no âmbito do PROMPSA;
- III - Formalização de instrumento contratual específico.

Parágrafo Único. Os requisitos específicos de participação no PROMPSA, bem como as condições para a sua implantação, monitoramento e avaliação serão definidos em Regulamento homologado por Decreto do Prefeito Municipal, atendidas as disponibilidades orçamentárias.

Art. 9º Ficam isentos do ISS os serviços diretamente relacionados ao PROMPSA ou a projetos privados de pagamento por serviços ambientais reconhecidos pelo poder público municipal e executados no âmbito de seu território, tais como:

- I - a produção de sementes e mudas de espécies nativas;
- II - o plantio de espécies nativas em imóveis rurais beneficiados pelo PROMPSA ou por projetos privados de pagamento por serviços ambientais reconhecidos pelo poder público municipal e executados no âmbito de seu território;
- III – os serviços relacionados à preservação das nascentes, dos cursos de água e das fontes de abastecimento;
- IV – a execução de obras e instalação de equipamentos para o tratamento de efluentes.

§1º O sujeito passivo do imposto deverá comprovar que o serviço está diretamente relacionado ao PROMPSA ou por projetos privados de pagamento por serviços ambientais reconhecidos pelo poder público municipal e executados no âmbito de seu território.

§2º O contribuinte ou o responsável pelo recolhimento sujeito passivo do imposto deverá informar no documento fiscal emitido ou no documento de arrecadação respectivo o valor total do serviço, o valor do tributo dispensado, calculado pela aplicação da alíquota do imposto que incidiria sobre a operação e, ainda, o valor recebido ou devido em consequência da prestação do serviço.

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Art. 10 Fica criado o Fundo Municipal de Pagamento por Serviços Ambientais (FMPSA), de natureza contábil, com a finalidade de financiar as ações do Programa de Pagamento por Serviços Ambientais, dentro dos critérios estabelecidos nesta Lei e em seu Regulamento.

Parágrafo Único. O regulamento do Fundo Municipal de Pagamento por Serviços Ambientais (FMPSA) será homologado por Decreto do Prefeito Municipal.

Art. 11 Constituem recursos do FMPSA:

I – recursos oriundos do Fundo Municipal de Meio Ambiente, depositados exclusivamente para PROMPSA;

II - os créditos orçamentários que lhe forem consignados pelo Orçamento Geral do Município;

III – transferências oriundas do orçamento da União e do Estado do Rio Grande do Sul;

IV – recursos provenientes da cobrança de percentual pelo uso e consumo da água;

V – ações, contribuições, subvenções, transferências, legados e doações de origem nacionais e internacionais, públicas ou privadas e quaisquer outras fontes ou atividades;

VI - os rendimentos de qualquer natureza derivados de aplicação de seu patrimônio;

VII – receitas advindas da venda, negociação ou doações de créditos de carbono;

VIII - os recursos provenientes de acordos, convênios, contratos, consórcios e termos de cooperação com entidades públicas e privadas.

Art. 12 Será constituído, no âmbito do Conselho Municipal de Meio Ambiente – CONDEMA, a Comissão Gestora do Programa Municipal de Pagamento por Serviços Ambientais, composto por representantes governamentais e da sociedade civil, cabendo-lhe acompanhar a implementação e propor aperfeiçoamentos ao PROMPSA, bem como avaliar o cumprimento das metas estabelecidas nos projetos.

Parágrafo único. A composição, organização e funcionamento da Comissão Gestora será disposta em regulamento homologado por Decreto do Prefeito Municipal.

Art. 13 Esta lei entrará em vigor na data de sua publicação.

Gabinete da Prefeita, 01 de dezembro de 2015.

ROSANE TONQUIST PETRY,
Prefeita Municipal.

REGISTRE-SE, PUBLIQUE-SE e CUMPRA-SE.

Secretaria Municipal de Administração, 01 de dezembro de 2015.

HAROLDO GENEHR, Secretário.