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Participatory Guarantee Systems in Antioquia, Risaralda and Valle del Cauca (Colombia)

Where the consumers' trust meets the producers' satisfaction

Master Thesis

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To Erich, Monika, Jakob, Johannes and Carolina.

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List of used abbreviations

ACABYE – Asociación Colombiana de Agricultura Biológica y Ecodesarrollo

AE – Agroecology

ASOCAMPO – Asociación de Productores Campesinos del Oriente Antioqueño

ASOPROORGANICOS – Asociación de Productores Agropecuarios Orgánicos del Valle y Cauca

a.s.l. – above sea level

CARDER – Corporación Autónoma Regional de Risaralda

CB – certification body

CORA – Corporación Regional Agroecológica

CVC – Corporación Autónoma del Valle del Cauca

FAO – Food and Agriculture Organization of the United Nations

GDP – gross domestic product

ICS – Internal Control System

IQR – Interquartile Range

IFOAM – International Federation of Organic Agriculture Movements

MAELA – Movimiento Agroecológico de América Latina y el Caribe

MDN – Median

NGO – Non Governmental Organization

OA – Organic Agriculture

PGS – Participatory Guarantee System

RECAB – Red Colombiana de Agricultura Biológica

RECAR – Red Agroecológica del Caribe

TPC – Third-party certification

UNAL – Universidad Nacional de Colombia

UTP – Universidad Tecnológica de Pereira

WHO – World Health Organization

1. Introduction

Organic agriculture protects and enhances the agroecosystem (CAC, 1999), tackles health hazards of pesticide residues, and tries to avoid chemical farm inputs from limited resources (Lampkin, 1990). A certification system, based in standards and regulations, helped to establish a global organic market. Nevertheless, currently only one percent of global farmland is certified organic (Willer and Lernoud, 2016). There are, however, millions of non-certified organic / agroecological farmers that produce substantial amounts of staple foods worldwide (Altieri, 2002).

Participatory Guarantee Systems (PGS) are claimed to be an alternative to traditional Third-party certification (TPC) of organic farming (D'Amico and Castro, 2016). The alternative certification system overcomes barriers to the market, caused by high costs and bureaucracy in TPC. Smallholders especially benefit from the alternative certification which is mostly used for local marketing (Gould, 2014). Members of an international workshop on alternative certification organized by the International Federation of Organic Agriculture Movements (IFOAM) and the Agroecological Movement of Latin America and the Caribbean (MAELA) created the term PGS in 2004 (Fonseca and Lernoud, 2004).

In the late 2000s PGS started to evolve in Colombia. Reasons for the implementation were to support the self-control of smallholders, to create a direct link between producers and consumers and to recognize and visualize the work of peasant families who produce (agro-) ecological products (Suárez Rendón, 2013).

PGSs are confronted with the criticism of a potential lack of credibility, as the quality assurance isn't based on the principle of independence but on peer review (Castro, 2014) and on the low participation of various stakeholders such as consumers and producers (D'Amico and Castro, 2016).

In this thesis I want to characterize three participatory guarantee systems in Colombia; identifying and describing the actors involved, depicting and explaining the functionality of the system and shedding light on the role of the consumer and the producer applying a mixed methods approach combining both qualitative and quantitative methods.

2. Literature review

2.1. Organic agriculture

In this chapter I give a short overview about the history of organic agriculture, try to define Organic Agriculture (OA), present information about the volume of organic production in 2014 and conclude with a passage about the growth in OA over the last couple of years that led to what became known as the conventionalization hypothesis.

In 1924, Dr. Rudolph Steiner held a course on agriculture in Wrocław (Breslau), based on his teachings of anthroposophy, that led to the formation of biodynamic agriculture. As a botanist of the British Royal Empire in India, Sir Albert Howard contributed to the understandings of plant health connected to soil health. Howard learned a great deal, observing how local traditional agriculture was done in India. In Great Britain, Lady Eve Balfour started to experiment with ecological agriculture and published the book “The Living Soil” in 1943. The central theme of Balfour’s book was the relation between the health of soil, plants and humans. Balfour and Howard founded the Soil Association in 1952. Inspired by Howard’s work and Steiner’s biodynamic concepts, the Swiss Couple Dr. Hans Christian Müller and his wife Maria Müller experimented and developed what evolved into organic biological agriculture. In 1949 Hans Christian Müller started to produce and market organic biological products with a group of farmers. Dr. Hans Peter Rusch supported Müllers’ results with his research about soil fertility (Schaumann et al., 2002).

But, what is organic agriculture and how is it defined? Nicolas Lampkin (1993) mentioned the difficulty of defining organic agriculture due to its diverse nomenclature around the world. Lampkin referenced that there existed at least sixteen different names. Some of them mean more or less the same whereas others such as biodynamic agriculture are embedded in a philosophy that covers not only farming but also education, art, nutrition and religion (Lampkin, 1990).

The Codex Alimentarius Commission defined organic agriculture as a “holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods as opposed to using synthetic materials, to fulfill any specific function within the system” (CAC, 1999).

In the year 2014 there were 43.7 million hectares of certified organic farmland totaling a share of 0.99% of the total agricultural land. There were 2.3 million producers in 172 countries generating retail sales of 80 billion US dollar. In 1999 there were 11 million hectares of certified organic farmland, 200.000 producers generating retail sales of 15.2 billion US dollar. Certified organic farmland therefore quadrupled, the number of producers increased tenfold and sales rose slightly more than five times. These numbers present evidence of a fast growing sector (D’Amico and Castro, 2016).

The growth might have led to the formulation of the conventionalization hypothesis which considered that the “organic sector was beginning to resemble the conventional sector”. Characteristics of conventionalization are: large-scale production units, industrialized mono-

cropping, off-farm development of organic inputs, marginalization of small scale farmers through the preference of producers that can supply bulk quantities and increased mechanization (Buck et al., 1997; Dinis et al., 2015).

On the other hand, according to Altieri (2002), there are indigenous, peasant and small family farmers that engage in non-certified organic agriculture. Some of these farmers are referred to or identify themselves as being part of an agroecological movement, or producing according agroecological practices.

2.2. Agroecology

In the 1920s, Bensin, a Russian agronomist, gave birth to the term agroecology (AE). Bensin studied local corn varieties and used the term agroecology to describe the application of ecology in agriculture. In the 1950s, Tischler, a German zoologist and ecologist published a book titled "Agrarökologie" (Agroecology) analyzing plant, soil, animal and climate interactions. In the 60s and 70s, as a response to the Green Revolution the application of ecology to agriculture gained further weight. By that time the research on traditional and indigenous farming systems had an important influence – and still has today. In the 1980s, producers in Latin-America first applied agroecology using agricultural techniques - presenting an alternative to conventional agriculture. In the 1990s environmental movements in the US and Latin America emerged that were referred to as agroecological movements, relating society to agriculture. The term agroecology might therefore be understood as a science discipline, as a movement and as a practice (Francis et al., 2003; Wezel et al., 2009)

A definition of agroecology was proposed by Dalgaard et al. (2003): "Agroecology can currently be defined as the study of interactions between plants, animals, humans and the environment within food production- and consumption systems." Another, similar definition by Francis et al. (2003) defined agroecology as "the integrative study of the ecology of the entire food system, encompassing ecological, economic and social dimensions."

It is difficult to present precise data on the number of producers, the cultivated area or the economic impact of non-certified organic / agroecological agriculture. However, Altieri (2002) mentioned millions of non-certified organic farmers producing in Latin America at least 50 percent of maize, beans, cassava and potatoes, substantial amounts of grains in Africa and most of the rice in Asia.

Some of the discussed topics and obstacles in agroecological research are scaling, interdisciplinarity and the possible contribution of AE to foster climate change resilient farming systems. Referring to scale, it is mentioned that research conducted at the plot or farm level could "not always readily be generalized to regional, national or global level relevant to decision makers" (Dalgaard et al., 2003). Obstacles concerning interdisciplinarity were reported to be "mainly cultural and political not technical" (Dalgaard et al., 2003). The deduction and adoption of agroecological techniques from traditional farming systems to modern farms (focusing especially on smallholders), might help to develop more climate resilient farms (Altieri et al., 2015).

AE is gaining ground in the scientific community and in social movements, depicted by Bellon et al. (2011) in a contribution to the conference proceedings of the 17th IFOAM world congress, that examined the relationship between OF and AE. The importance of deepening

the relations and cross-fertilization of both disciplines is laid out. Important characteristics that distinguish OF from AE are its standards and regulations and the control and certification system that developed over history.

2.3. Quality assurance in organic agriculture

Consumers need some form of identification that the product they consume is genuinely produced organic. Consumers' and producers' interests have to be protected from fraudulent behavior; otherwise conventionally produced food could for example be repacked and sold as organic. One way to deal with these issues is through organic standards (Lampkin, 1990).

The elaboration of products is checked with a standard, and if they have been produced in accordance with them, they can be labeled with a logo. Quality assurance systems are argued "to make food supply chains legible, traceable, and perhaps less risky" (Guthman, 2004). There are different types of verification systems: first-party; which means that the producer or trader verifies the products through self-regulation, second-party; where a body closely related to the producer or trader does the verification and third-party; where an independent body checks producer compliance with certain standards (Eden et al., 2008a).

The first standards for biodynamic agriculture were published in 1928 by the organization Demeter. The Soil Association (UK) published their standard in 1967 (Schaumann et al., 2002). The evolution of IFOAM, the International Federation of Organic Agriculture Movements (founded in 1972), led to the written formulation of principles of organic agriculture in 1980. Originally consisting of seven principles, they have been constantly adapted, consisting now of four principles: The principles of Health, Ecology, Fairness and Care. The principles were used as an introduction to the organic standard developed by IFOAM. IFOAMs standard had an important influence at the formulation of the European Regulation for organic agriculture (EG 2092/91). At the turn of the millennium, Canada (COS, Canadian Organic Standards – 1998), Japan (JAS, Japanese Agricultural Standard – 1999) and the USA (NOP, National Organic Program – 2000) implemented their public standards (Fouilleux and Loconto, 2016; Kristiansen et al., 2006). 1999 to 2001, the Codex Alimentarius Commission of the FAO/WHO published recommendations "for Production, Processing, Labeling and Marketing of Organically Produced Foods". Officially the codex guidelines are only recommendations, but it appears that they "carry a certain legal value as the official international standard" (Dittrich, 2012). In 2015, 87 countries had implemented an organic standard, whilst 18 countries were in the process of drafting one (D'Amico and Castro, 2016) (Figure 1).

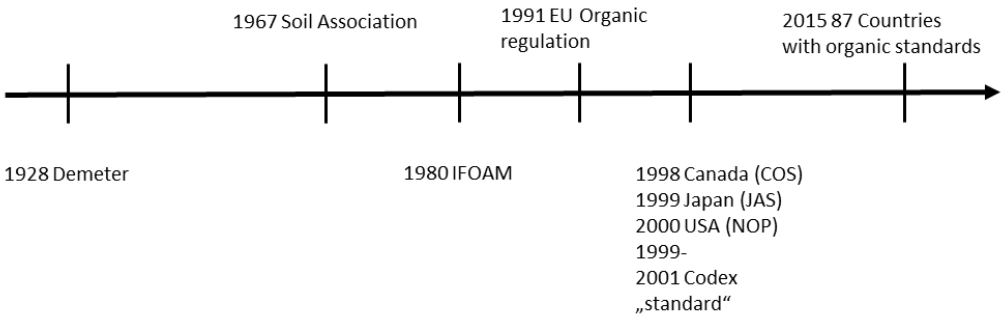

Figure 1: Development of standards and regulations in organic agriculture over time (D'Amico and Castro, 2016; Fouilleux and Loconto, 2016).

There are farmers who don't certify their products as organic and still might sell their products at a prize premium on local scale, but if the farmer wants to access a bigger market like on national or international scale, they usually have to get certification (Dabbert et al., 2014). Third-party certification (TPC) is debated as the "most trustworthy approach" to assure quality in organic agriculture (Eden et al., 2008b).

2.4. Third Party Certification in Organic Agriculture

The aim of certifying products, processes or services is to give confidence to all interested parties that a product, process or service fulfills specified requirements. The value of certification is the degree of confidence and trust that is established by an impartial and competent demonstration of fulfillment of specified requirements by a third party (OVE, 2012).

Third party certification is the verification of producer's, processor's or transformer' compliance with organic standards by an accredited (third party) certification body to create trust and confidence at the customer level (Figure 2). The customer might be a consumer or an institutional buyer (Albersmeier et al., 2009).

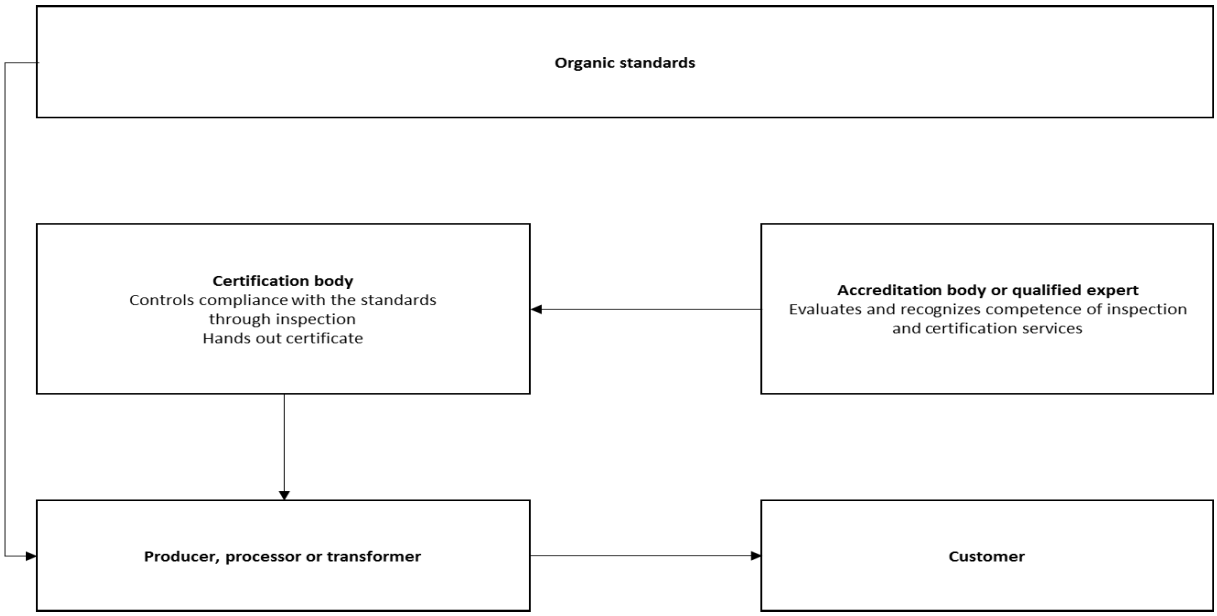

Figure 2: Basic structure of third-party certification. Adapted (Albersmeier et al., 2009; Vogl et al., 2005).

Certification bodies are required to function according to ISO/IEC 17065. These norms describe the "general requirements for assessment and accreditation of certification bodies" (Albersmeier et al. 2009). Certification bodies are therefore supervised by an independent accreditation body or by a nominated qualified expert (Vogl et al., 2005). Accreditation is a "procedure by which a government agency having jurisdiction" or an expert, "formally recognizes the competence of an inspection and/or certification body to provide inspection and certification services. For organic production the competent authority may delegate the accreditation function to a private body" (CAC 1999).

Usually TPC works as follows: (1) Application (e.g. by a producer, importer or a reseller) to a third-party certifier for certification. (2) The certification body (CB) establishes a pre-

assessment and a documentation review of the facilities and the production operations. (3) The third-party certifier performs field audits. (4) The applicant receives a certificate and the allowance to label the products as certified when conformity with the standards is verified (Hatanaka et al., 2005).

Bio Inspecta, a Swiss certifier describes the inspection as such: the inspector makes an appointment with the farmer (if it is not an unheralded inspection). The field audit is performed with the help of a checklist. At the beginning of the inspection the procedure will be discussed. During on-site inspection the state of the art is documented and if something is not in order with the standards and norms, actions are discussed to facilitate compliance with regulations. At the end of the inspection there is a detailed discussion about the findings and guidance is given to correct possible non-compliance. If serious deviances are present, the CB can impose an immediate marketing stop. At the end of the field audit, the inspection report is signed by the inspector and the farmer. The inspection report and all documents necessary to obtain organic certification are later evaluated by another person to safeguard impartiality (Bio Inspecta, 2015). Control visits are normally done only once a year, so detailed and complete documentation is necessary (ABG, 2008).

The main reasons proclaimed in the literature as to why TPC is viewed as the gold-standard of certification are its independency, objectivity, impartiality and transparency. The third-party actors of the CB are independent from other actors in the agrifood system. Independency is the main thing that differentiates TPC from first-party or second-party certification. The CB has “no stake in the outcome” (Fagan, 2003) of the certification process and would prefer neither the producers nor the consumer’s interests as that would question their credibility and impartiality. TPC is therefore seen as an important tool towards food safety (Eden et al., 2008a, 2008b; Fagan, 2003; Hatanaka et al., 2005; Tanner, 2000).

Next to the aforementioned benefits of TPC exist a number of critique points to it.

2.5. Criticism to third party certification in organic agriculture

The major critique points in TPC which have been identified are: costs of certification for producers, high amount of bureaucracy, the call for equivalency with different standards, the separation of certification and extension services and a conventionalization effect of TPC on organic agriculture.

TPC has its price, for which in most cases the producer has to pay. It involves costs which have to be paid to the certification body, and the costs for the work which is needed for doing record keeping and reporting duties (Dabbert et al., 2014). International trading partners, such as super-market chains may require certifiers from industrialized countries, as they are often perceived as more competent (Barrett et al., 2002). Furthermore in many countries from the globalized south there is no certifier from that country (Garcia Martinez and Bañados, 2004). If a producer wants to certify his products as organic, certifiers from e.g. Europe or USA have to travel to the producer, who has to cover not only the costs of the certification but also for the “travel and the living expenses” of the certifier (Barrett et al., 2002). Because of the high costs of certification, many producers of the globalized south are excluded from TPC. Producers often receive limited government support in case of subsidies and public policies (Santacoloma, 2007). “Without financial, technical or educational assistance” producers are excluded from the global market and are forced to sell their produce on less lucrative local markets (Hatanaka et al., 2005).

A lot of documentation is necessary in TPC. During field audits detailed documentation about plant production (origin of seeds, crop rotation plan, index of production resources, documentation of harvested and sold products…), animal husbandry (documentation of livestock, fodder, animal treatment…), processing and commercialization is required (ABG, 2008). “Requirements of extensive documentation … had a marked impact on the economic organization and livelihoods of rural producers and groups” (Mutersbaugh et al., 2005). Problems with bureaucracy and extra paper work linked to low literacy levels were reported by Cáceres (2005).

Many importers require a national certificate as an import requirement. Organic producers and exporters have to fulfill standards that were developed based on agriculture in a temperate climate, which sometimes might not make sense for agricultural practices in tropical and semitropical climates (Eernstman & Wals 2009; Vogl et al. 2005). In the EU equivalence is given, if the exporting country is in the list of third countries or through an import permit which can be obtained through TPC. Producers and exporters apply for inspection by an EU-inspection body or an EU-assessed national body. Some countries have additional requirements to the EU regulation which have to be fulfilled too. These requirements of equivalency make it difficult for smallholders to achieve organic certification. Authorities lack competency to assess equivalency, that means “detailed formalities” are applied which leads to a “consensus on paper, not in practice” (Vogl et al., 2005). Lack of equivalency in the certification system of export countries are linked to an “increase in certification and transaction costs, as products accepted in one country may not be accepted in another” (Biao et al., 2005; Garcia Martinez and Bañados, 2004).

The shift from peer review to TPC as the predominant certification method led to a separation of extension and certification services for the sake of impartiality. A condition which a control body executive, according to (Mutersbaugh, 2005), referred to as somehow “schizophrenic” for CBs.

Fouilleux & Loconto (2016) argue that the predominant system, based in standards, certification and accreditation, “has a conventionalization effect on the organic sector” due to the evolved structure of the system that limits “the direction in which both the debate [about standards, certification and accreditation] and the acceptable [production] activities are able to go”.

Alternative certification methods, or let’s say “*less formal methods for guaranteeing*”, the organic quality of products developed at the same time as TPC in organic agriculture arose, to overcome some of the aforementioned arguments (Fonseca and Lernoud, 2004). Internal Control Systems and Participatory Guarantee Systems are two of this alternative certification methods.

2.6. Participatory guarantee systems

The history of participatory certification dates back to the 1970s, although the terms and the conceptual framework for what is now known as Participatory Guarantee Systems were developed in a workshop organized by IFOAM/MAELA on “Alternative Certification” which took place in Brazil in 2004 (Fonseca, 2004).

But, what IS a participatory guarantee system? Who participates, and to guarantee what, how, to whom, in which system and for what reasons?

Potential hints to answer these questions may be encountered in the various remarks about PGS. Meirelles (2007), stated that the “term PGS unites different methodologies with the common goal to evaluate the compliance of a determined product, process or service with pre-established standards. They are based in the search for the highest participation of all interested actors and adapted procedures to different socio-cultural realities”.

IFOAM describes PGS as “locally focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange” (IFOAM, n.d. a).

According to (Padel, 2010), in a report about European and international certification systems of organic agriculture, the main objective of PGS was “to provide a trust system for direct marketing of organic produce to local consumers”.

Torremocha (2011) presented a more political approach to PGSs by Van der Akker, organic producer and European representative of the PGS Task Force of IFOAM till 2008. He stated that they are “an alternative for small scale producers that are marginalized by third party certification. Their objective is to ‘defend’ the producers from the globalized markets, (…) to promote the sensitization of consumers regarding socio-ecological challenges, but also sensitize about agricultural and commercial practices.”

The preceding passages presented different approaches to PGS. The next sub-chapter approaches PGS, explaining common features and elements.

2.6.1. Features and elements of Participatory Guarantee Systems

A producer who wants to form part of the PGS pledges his compliance with the established standards and norms, which is verified for instance through peer review. There might be also an external verification, for example that people from another PGS, from another market and / or consumers verify the compliance with the standards and norms. In case of compliance with the standards, there are seals and labels in place to mark products or marketing stands. In case of non-compliances, there are defined consequences. The procedures and the management system should be documented (May, 2008; Meirelles, 2010) (Figure 3 & Figure 4).

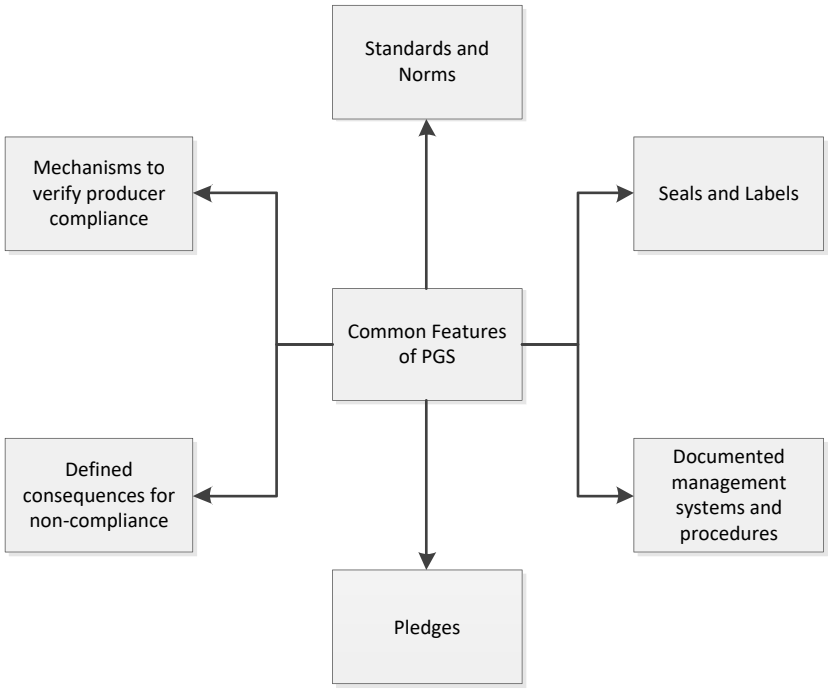

Figure 3: Common Features of PGSs (May, 2008).

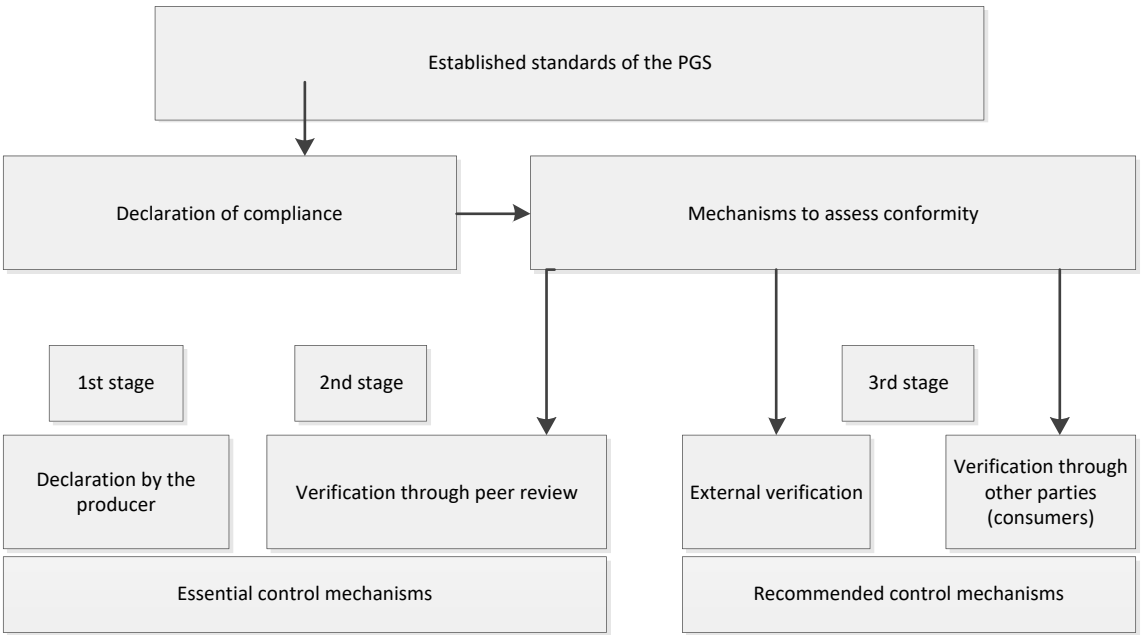

Figure 4: Concept of verification in a PGS. Adapted (Meirelles, 2010).

A crucial element of a PGS is the participation of different stakeholders such as producers, consumers, NGOs and agronomists, but also consumer groups, environmental groups and local and regional government agencies may be involved (IFOAM, n.d. b). All of the stakeholders are (ideally) seen as equal, which means that the system is organized horizontally rather than vertically. Decisions are made together, where the voice of every participant counts the same (Nelson et al., 2010).

Another element is knowledge exchange which is achieved through meetings and workshops where “technical expertise and marketing issues” are debated (May, 2008). The participation facilitates the development of trust between the stakeholders over time (Fonseca, 2004).

Transparency is sought by making all the stakeholders aware of how the guarantee system works, on how standards and norms are implemented and how decisions are made. Public access to documents such as a list of certified producers, details about farms and non-compliance actions improve transparency. The participation of stakeholders in farm visits dedicated to the certification of the farm raises transparency as well (May, 2008; Nelson et al., 2010)

2.6.2. PGS in the world, in Latin-America and the legal situation in Colombia

IFOAM’s Global PGS study 2015 gives a rough estimate about producers involved and the number of PGSs in general. The results suggested that 109.317 producers and processers were involved in PGSs with 46.945 being certified. Seventy-two countries reported to have either well-established, under development or operational PGSs (IFOAM, 2015) (Table 1).

Table 1: Estimation of the number of PGS initiatives, number of producers and number of certified producers worldwide in the year 2015. Adapted from (IFOAM, 2015).

Date type	Asia	Africa and Middle East	Europe	Latin America and Caribbean	North America
Number of PGS Initiatives (operational and under development)	76 (43/33)	62 (26/35)	18 (9/9)	73 (51/22)	4 (4/0)
Number of producers involved	40.883	30.137	1.189	35.026	1.901
Number of producers certified	25.294	7.965	914	11.810	882

International workshops and events have been held in Latin-America concerning PGS.

IFOAM and MAELA organized the first international workshop about alternative certification in organic agriculture. The workshop took place in Brazil in April 2004. Participants identified: common aspects from different examples of alternative certification systems, differences between participatory certification and third party certification and advantages and disadvantages of participatory certification in comparison to TPC (Fonseca, 2004).

In 2007, IFOAM and MAELA organized a second workshop in Antônio Prado – Brazil. Identified strategies and actions were the promotion of legalization of PGS in different countries, international recognition of PGS and the inclusion of consumers in the alternative assurance systems. An important outcome was the statement, that public authorities shouldn’t focus on the aspect of control but on the empowerment of organic agriculture (IFOAM and MAELA, 2007).

In 2009, the Latin-American forum of participatory guarantee systems took place, as well in Antônio Prado – Brazil. The aims of the forum were political and technical exchanges between the PGSs of Latin-America and the promotion of PGS to society (Foro Latinoamericano de SPGs, 2009).

In 2011, another forum took place in La Paz, Bolivia. The objectives were again to exchange experiences and the progress of different PGSs of the continent. Discussed topics were the importance of the simplification of PGSs, the importance of the presence of products certified with PGS in local (farmers') but also institutional markets. It was highlighted that PGS should be perceived as an instrument for the promotion of organic agriculture next its function as a quality assurance system (Foro Latinoamericano de SPGs, 2011).

In countries, where participatory certification of organic produce isn't recognized by the government in the national organic regulations, the products of the PGS cannot be labeled as organic (Meirelles, 2010). That's also the case in Colombia. Colombian resolution 187 of 2006 states, that only products which are certified by an accredited third party, can be labeled as organic, ecologic or biologic (Ramírez and Guzmán, 2011). Although key informants mentioned a draft of the organic norm in Colombia that included PGS in the regulation (KI1 & KI3).

2.6.3. Common obstacles and open questions

The continuous development and implementation of a quality assurance system that is "capable of guaranteeing the quality of their (organic) products" was perceived as a main challenge for non-certified Chilean resource poor farmers (Cáceres, 2005).

A general low participation of diverse actors was reported by Hochreiter (2011). Hofstadler (2013), found out about the absence of supporting NGO's in Brazil's Ecovida PGS, to facilitate the learning process of participating producers. However informal communication during the peer reviews was considered as the most important source of knowledge exchange by the interviewed stakeholders (Hofstadler, 2013).

A very low participation of consumers in the peer review in Brazil's Ecovida PGS was mentioned (Hofstadler, 2013). Another challenge regards the producer's participation in the peer review. The authors identified two problems. The first is, that farmers might be "very easy on their peers" with the hope that they will be treated the same way when their farm is reviewed. The second problem is that producers participating in the verification process might be "overly critical of other peers" caused by feelings of competitiveness and the hope to have a "higher standing within the group". To overcome this problems, it is important to educate the participants that evaluation and decisions are based on standards rather than "subjective feelings or personal concerns" (Nelson et al., 2010).

Although bureaucracy tends to be lower in participatory certification (in comparison to TPC) producers in a Mexican case study showed to have a very hard time to provide documentation regarding their farming activities. The main reason for that is that "there is no cultural tradition of maintaining such records". Another limitation is the reliance on voluntary work. Members of the certification committee spend their spare time on farm visits and the evaluation of the producers. The commitment might have its limits because of the members' families, work and other responsibilities (Nelson et al., 2010).

Sacchi et al. (2015) investigated consumer buying behavior towards products certified by a PGS in Brazil and raised the question that consumers might buy the products without fully knowing and / or understanding the quality assurance system. Furthermore, she pointed out the necessity to characterize consumer buying behavior in other cultural and geographical contexts to "understand the willingness of organic food consumers to accept and trust alternative quality assurance" systems.

To the best of my knowledge there is no study that evaluates producers' satisfaction with a participatory guarantee system. Padilla Bravo et al. (2012) examined the producer's satisfaction with the organic third party certification in Chile finding out that most of the producers were satisfied mostly due to increased farm income.

3. Research aims

PGSs are promoted to be an alternative form of certification that facilitates local quality assurance and commercialization of organic or agroecological products (D'Amico and Castro, 2016). The aim of this work is to describe PGS in the context of Colombia to contribute to the ongoing discussion about PGS, focusing on the perception of key informants, consumers and producers.

3.1. Research questions

Research question 1: What are the actors that intervene in three different PGSs in Colombia?

Research question 2: How do the three PGSs work?

Research question 3: What is the role of the consumer?

Research question 4: What is the role of the producer?

3.2. Research objectives

The objective of this master thesis was the characterization of Participatory Guarantee Systems in Colombia. The focus was set on three cases located in three departments of Colombia: (1) PGS in the province of Antioquia; (2) PGS in the province of Risaralda; (3) PGS in the province of Valle del Cauca.

The following topics were part of the investigation:

- Identification and description of the actors and their administrative functions of the three PGSs;
- Depiction of the functionality of the PGSs;
- Depiction of the role of the consumer in the three PGSs;
- Depiction of the role of the producer in the three PGSs.

4. Methods

4.1. Study areas

I did research in three different departments of Colombia: in the departments of Antioquia, Risaralda and Valle del Cauca (Table 2, Table 3).

Table 2: Data about capital, number of habitants, number of municipalities, surface area in km², population density and about the gross domestic product (GDP) in the departments of Antioquia, Valle del Cauca and Risaralda. Adapted from (DANE, 2012; SOGEOCOL - Sociedad Geográfica de Colombia, 2011).

Data type	Antioquia	Risaralda	Valle del Cauca
Capital	Medellín	Pereira	Cali
Habitants	5,601,507	859,666	4,052,535
Municipalities	125	14	42
Surface area	63,612 km²	4,140 km²	22,140 km²
Population density	88.06 habitants/km²	207.65 habitants/km²	183.04 habitants/km²
Economy GDP	138,370 billion Pesos (13.2% of the total GDP)	8,159 billion Pesos (1.5% of the total GDP)	54,353 billion Pesos (10% of the total GDP)

Table 3: Permanent cropland area, temporary cropland area, area for livestock production including pastures and area for natural and planted forests in the departments of Antioquia, Risaralda and Valle del Cauca in hectares. Adapted from (DANE, 2014).

Soil usage	Antioquia	Risaralda	Valle del Cauca
Permanent crops area	183,871 ha	62,569 ha	103,587 ha
Temporary crops area	10,078 ha	4,435 ha	9,606 ha
Area for livestock production (including pasture)	3,126,065 ha	80,007 ha	567,712 ha

4.1.1. Antioquia

The capital of the department Antioquia is Medellín. Antioquia consists of 125 municipalities and has 5,601,507 habitants (Figure 5). It is the largest of the three departments with a surface area of 63,612km². The population density is the lowest with 88.06 habitants per square kilometer. Antioquia's economy adds up to 13.2% of the total gross domestic product (GDP) of Colombia and equals to 138,370 billion Colombian Pesos (Table 2).

Figure 5: Map of the municipalities of the Department of Antioquia and place of commercialization of the PGS of Antioquia indicated with an arrow. Black dots indicate location of municipality; numbers indicate the names of the respective municipalities. Colors mark the regions belonging to the respective municipality. Adapted (SOGEOCOL - Sociedad Geográfica de Colombia, 2011).

Key informants, producers and consumers from that department came from the Eastern Antioquia sub region. There, the sea level ranges from 1,000 m in the municipality of San Luis to 2,500 m in the municipality of La Unión. The mean altitude is 1,862 m a.s.l. Mean annual temperature varies between min 13 to max 24°C depending on the location of the municipality. The mean annual precipitation varies between min 2000 to max 5000 mm (Gobernación de Antioquia, 2014; IDEAM, 2011).

Table 4: Five topmost permanent and temporary crops grown in hectares, and five topmost type and number of livestock held in the department of Antioquia. In the source, temporary crops where stated as: planted crop area semester one and planted crop area semester two, as the climatic conditions allow for two growing cycles. To get the amount of hectares planted per year I added together the amount of hectares reported for both semesters. Total number of chicken: number of cocks + number of broilers + number of laying hens ("gallina criolla"). Adapted from (DANE, 2014).

Permanent crop	**Temporary crop (two times sowing per year)**	**Livestock**
Coffee 120,224 ha	Corn 4,846 ha	Cattle 2,582,495
Plantain 50,205 ha	Beans 3,732 ha	Chicken 617,703
Sugar cane 41,558 ha	Potatoes 3,370 ha	Pigs 108,697
Cocoa 18,570 ha	Cassava 1,592 ha	Horses 91,407
Orange 13,504 ha	Tomato 1,446 ha	Mules 40,632

Antioquia has 183,871 ha area for permanent crops, 10,078 ha area for temporary crops and 3,126.065 ha area for livestock production (including pastures) (Table 3).

The five topmost permanent crops, as counted by the agrarian census in the year 2014 are: coffee, plantain, avocado, sugar cane (for panela production) and banana in descending order regarding the number of hectares planted in that year. The five topmost temporary crops planted 2014 planted in Antioquia are: corn, beans, potatoes, cassava and tomato. The department of Antioquia has a strong focus on animal production (Table 4).

Horses and mules are used nearly exclusively for draft and transport purposes and the high number of these animals gives a hint about the importance of these animals for the peasant sector.

Land distribution and property size is an important issue in Colombia. I present detailed information about the department of Antioquia. Land distribution and property size tended to be similar in the other two departments. Fifty-one percent of land registrations are Microfundios and comprise 3.5% of the registered land area. By contrast, 1.8% of land registrations (big properties) cover 31.2% of the total registered land area. If we sum up the Micro- and Minifundios with the Small properties and compare that sum with the Medium and Big properties we get the following picture: while 82.0% of all registered properties comprise 18.5% of the total registered land in the form of Micro-, Minifundios and Small properties, 18.0% of all registered properties make up to 81.5% of the total registered land area in the form of Medium and Big properties (IGAC, 2012) (Figure 6).

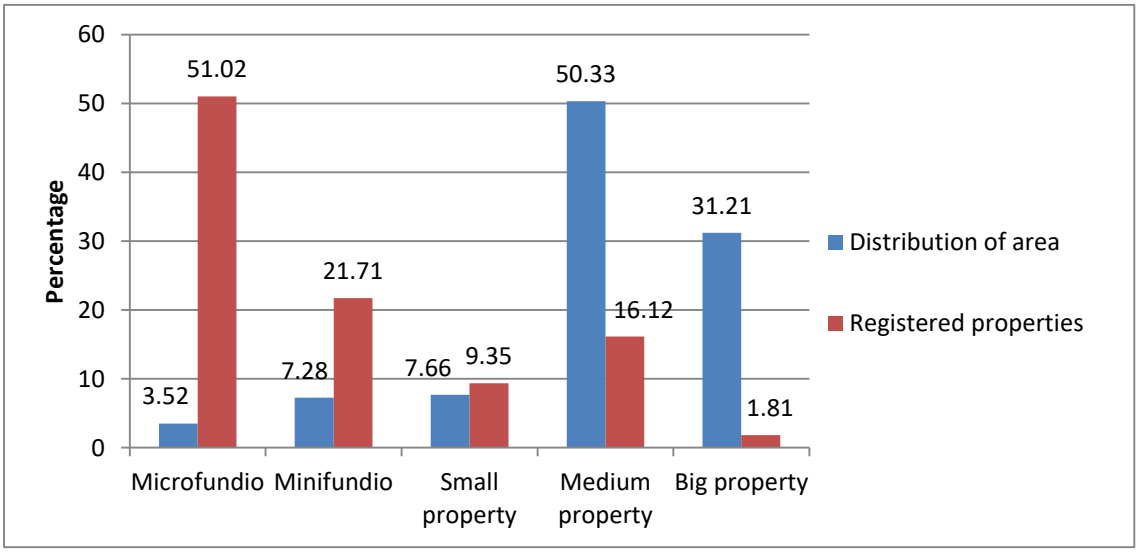

Figure 6: Distribution of rural property in Antioquia according to five categories of property size: Microfundio: < 3 hectares; Minifundio: 3 to 10 hectares; Small property: 10.01 to 20 hectares; Medium property: 20.01 to 200 hectares and Big property: > 200 hectares. Distribution of area: 100% = total percentage of registered land area in the department of Antioquia; Registered properties: 100% = total percentage of registered properties in the department of Antioquia (IGAC, 2012).

4.1.2. Risaralda

Risaralda is the smallest of the three selected departments. Its capital is Pereira. Risaralda has 859,666 habitants in 14 municipalities (Figure 7). The surface area consists of 4,140 km². The population density is the highest and adds up to 207.7 habitants per square kilometer. The gross domestic product of Risaralda sums up to 8,159 billion Pesos which equals to 1.5% of total nations GDP (Table 2).

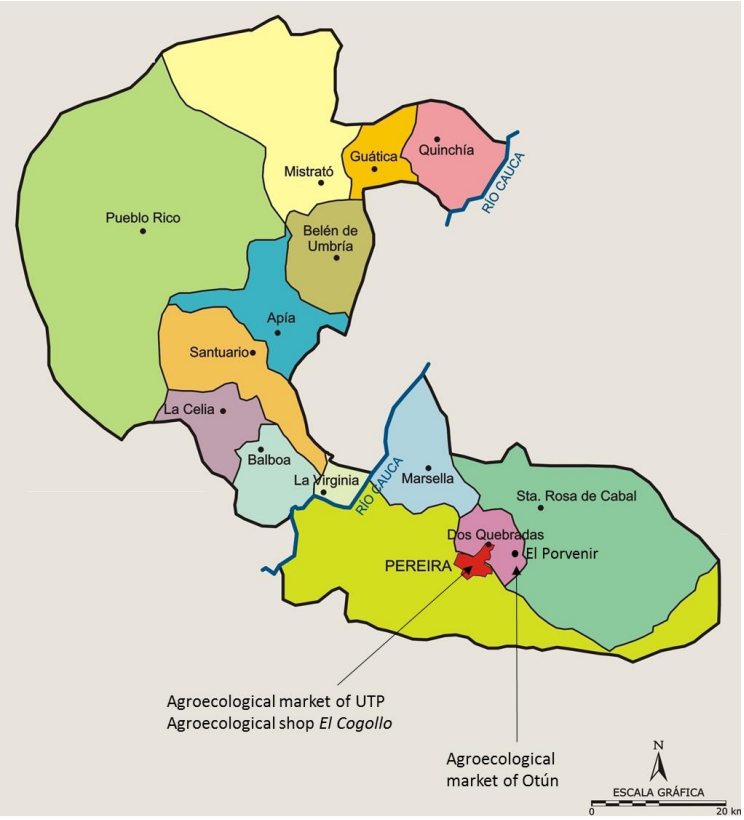

Figure 7: Map of the municipalities of the Department of Risaralda and places of commercialization of the PGS of Risaralda indicated with arrows. Black dots indicate locations of municipalities. Colors mark the regions belonging to the respective municipality. Adapted (SOGEOCOL - Sociedad Geográfica de Colombia, 2011).

Mean altitude in Risaralda is 2000 m a.s.l., mean annual temperature reaches from 12 – 24°C depending on the location. Precipitation is between 2000 to 3000 mm per year (Gobernación de Risaralda, 2004; IDEAM, 2011).

Table 5: Five topmost permanent and temporary crops grown in hectares, and five topmost type and number of livestock held in the department of Risaralda. In the source, temporary crops where stated as: planted crop area semester one and planted crop area semester two, as the climatic conditions allow for two growing cycles. To get the number of hectares planted per year I added together the number of hectares reported for both semesters. Total number of chicken: number of cocks + number of broilers + number of laying hens (“gallina criolla”). Adapted from (DANE, 2014).

Permanent crop	**Temporary crop (two times sowing per year)**	**Livestock**
Coffee 49,212 ha	Corn 6,110 ha	Cattle 110,310
Plantain 23,782 ha	Onions 1,740 ha	Chicken 54,518
Avocado 5,030 ha	Other cereals 599 ha	Pigs 10,561
Sugar cane 3,274 ha	Beans 536 ha	Horses 9,148
Banana 1,424 ha	Tomato 353 ha	Mules 537

Risaralda has 62,569 ha area for permanent crops, 4,435 ha area for temporary crops and 80,007 ha area for livestock production (including pastures) (Table 3).

The five topmost permanent crops in the department of Risaralda are: Coffee, plantain, avocado, sugar cane (for panela production) and banana in descending order regarding the number of hectares planted in that year. The five topmost planted temporary crops in Risaralda in the year 2014 were: Corn, onions, other cereals, beans and tomatoes (Table 5).

Most of the area for cropland is used for coffee production and plantain production. The difference between area for crops and area for livestock is only around 18.000 hectares, which suggests that the difference between plant production and animal production is more balanced than it is the case in Antioquia.

4.1.3. Valle del Cauca

The capital of Valle del Cauca is Cali. The department has 42 municipalities and 4,052,535 habitants (Figure 8). The total area of the Valle department is around one third of Antioquia's surface area and sums up to 22,140 km². The population density is 183.0 habitants per square kilometer – about the double size of Antioquia. The gross domestic product of Valle del Cauca is 54,353 billion Pesos equals 10.0% of Colombians economy (Table 2).

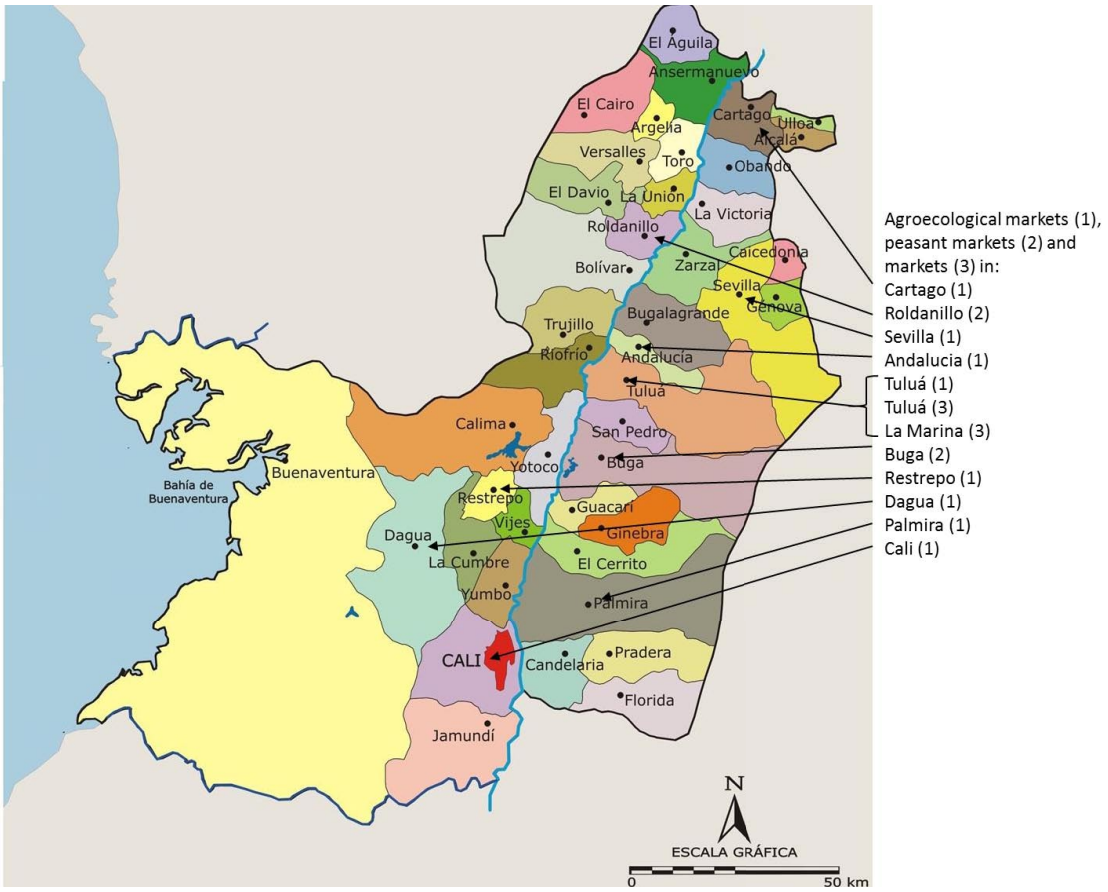

Figure 8: Map of the municipalities of the Department of Valle del Cauca and places of commercialization of the PGS of Valle del Cauca indicated with arrows. Black dots indicate locations of municipalities. Adapted (SOGEOCOL - Sociedad Geográfica de Colombia, 2011).

The altitude a.s.l. reaches from seven meters above sea level in the western part of the department in the municipality of Buenaventura to 1,860 m in the municipality of Versalles, in the Cordillera Occidental (West Andes). The mean altitude is 1,114 m a.s.l. The lowest mean annual temperature is 16 °C, the highest 27 °C. Mean annual temperature of all 42 municipalities is 22 °C. Precipitation is from 1,000 – 2,000 mm per year in the Central and Eastern Part, where all places relevant for the investigation are (Gobernación del Valle del Cauca, 2011; IDEAM, 2011).

Table 6: Five topmost permanent and temporary crops grown in hectares, and five topmost type and number of livestock held in the department of Valle del Cauca. In the source, temporary crops were stated as: planted crop area semester one and planted crop area semester two, as the climatic conditions allow for two growing cycles. To get the number of hectares planted per year I added together the number of hectares reported for both semesters. Total number of chicken: number of cocks + number of broilers + number of laying hens ("gallina criolla"). Adapted from (DANE - Departamento Administrativo Nacional de Estadística 2014; * Gobernación del Valle del Cauca 2011).

Permanent crop	Temporary crop (two times sowing per year)	Livestock
Sugar cane 208,774 ha*	Corn 14,854 ha	Cattle 527,030
Coffee 40,128 ha	Other cereals 2,604 ha	Chicken 184,223
Plantain 18,877 ha	Beans 582 ha	Pigs 41,145
Orange 5,430 ha	Onions 356 ha	Horse 28,529
Avocado 4,772 ha	Tomato 310 ha	Mules 4,087

The department of Valle del Cauca added together 103,587 ha area for permanent crops, 9,606 ha area of temporary crops and 567,712 ha area for livestock production (including pastures) (Table 2).

The five topmost permanent crops in 2014 were: Sugar cane, coffee, plantain, orange and avocado in descending order regarding the number of hectares planted in that year. The five topmost temporary crops were: Corn, other cereals, beans, onions and tomatoes (Table 6).

The dominant permanent crop in Valle del Cauca was sugar cane. This impression was strengthened through my observation and comments by key informants and producers from Valle del Cauca.

4.2. Research partners

When I started to search for literature about Participatory Guarantee Systems in Colombia I found two case studies (Ramírez and Guzmán, 2011; Suárez Rendón, 2013). In March 2014 I attended an event at my university about the effects of seed privatization in Colombia. I talked with Alba Portillo Calvache, one of the Colombian activists. Alba told me, that the network she was part of (Red de Guardianes de Semillas) was in the progress of establishing a PGS that certified seeds. Furthermore, she mentioned to me Tarsicio Aguilar Gomez as an expert and driving force regarding PGS in Colombia. In a next step I established contact via email to the authors of the case studies and to Tarsicio Aguilar, all of whom responded positively and offered their general interest in my cause of doing research

about PGS in Colombia. During the communication it became more and more evident, that the *Red Colombiana de Agricultura Biológica* RECAB (Colombian Network of biological agriculture) – the organization where Tarsicio was in the management committee, would be my research partner. RECAB and in especially Tarsicio helped me to choose and establish contact with two other entities who are important stakeholders in the implementation of PGS in two other geographical regions of Colombia: the producers' organization La Red de *Los Mercados Campesinos Agroecológicos del Valle del Cauca* (The Network of Agroecological peasent markets of the Valle del Cauca department) and the *Universidad Tecnológica de Pereira* UTP (Tecnological University of the city of Pereira).

4.2.1. Red Colombiana de Agricultura Biológica RECAB

The predecessor of RECAB was called ACABYE: *Asociación Colombiana de Agricultura Biológica y Ecodesarrollo* (Colombian Asociation of Biological Agriculture and Ecodevelopment). ACABYE started to enter the picture in 1987. ACABYE established relations with IFOAM and MAELA (Molina Arredondo et al., 1999).

RECAB was founded in 1992 with the aims of stimulating organic agriculture in Colombia, fostering the coalition of agroecological movements in Colombia by structuring organizational processes; strengthening indigenous and peasant movements. Another important aim was to position the network like an alternative to the Green Revolution and against gaining European influence in organic agriculture in Colombia. The network was organized nationwide, with a national coordination and regional groups (Molina Arredondo et al., 1999).

In 1994 RECAB organized the Third International Meeting of Organic Agriculture where representatives of IFOAM and international certifiers like Demeter and Ecocert participated (RECAB, 2010).

In 1996 RECAB experienced a crisis between the "romantic founders" on one side and technicians and professionals on the other side, that could be overcome (Molina Arredondo et al., 1999).

Little written history is available about the time of 2001 till 2005. In 2007, RECAB established a PGS together with RECAR - *Red Agroecológica del Caribe* (Agroecological Network of the Caribbean) an organization from the Colombian Caribbean area. It was called *Aval de Confianza* (Aval of Trust) and exists in a modified version till today. In 2010 RECAB made an agreement with ANPE, a Peruvian organization to foment PGS in the Andean region (RECAB, 2010).

RECAB went a long way from a nationwide network in their first days till today where only the regional groups of the provinces of Valle del Cauca and Antioquia are still working. Today RECAB is focusing on education and formation in rural areas, supporting the development of agroecological farmer's markets and fomenting the participatory guaranteeing of organic production (KI1).

4.2.2. Interview partners

Sampling evolved gradually during fieldwork. The boundaries of the samples were set through the three cases. I considered everyone who participated in the PGS as a producer, consumer, or key informant such as a technician or a leader of a PGS initiative inside the boundaries of the samples (Miles et al., 2014). I applied an array of different nonprobability

sampling methods due to the fact that there were no or incomplete lists of producers, consumers and other stakeholders. I used expert sampling to interview the key informants and snowball sampling to identify and interview producers and consumers for the first round of qualitative interviews. I applied convenience sampling to conduct the surveys with producers and consumers. Producers from the Antioquia PGS were not certified by the time I made the interviews and surveys, as the PGS was still at the beginning of its implementation. At the end of fieldwork Antioquia's eight were PGS certified. I managed to interview eight out of eight, the full sample of Antioquia's producers, eight out of 14 certified producers from Risaralda's PGS and nine out of 60 certified producers of the Valle PGS. Consumers that I observed buying from producers that were members of a PGS, I considered as possible interview partners (n=61). (Bernard, 2006; Trochim, n.d.).

In total I conducted 61 consumer surveys. Forty-four % of the interviewed consumers were female and 56% male. The youngest person reported to be 19, the oldest 83 years old (arithmetic mean is 46 years).

In total I conducted 25 producer surveys. Forty-eight% of the interviewed producers were female and 52% male. The youngest producer reported to be 16, the oldest 61 (arithmetic mean is 44 years).

4.3. Data collection

I did fieldwork in Colombia from 22.09.14 to 17.02.15. Inductive study designs are reported to make sense "in unfamiliar cultures, understudied phenomena, or … complex social processes" (Miles et al., 2014). Although Miles et al. (2014) warned that loose designed studies might need a substantial amount of time and might be challenging for unexperienced researchers compared to tight study designs. I applied a Mixed-Methods Design regarding qualitative and quantitative data collection. I started with exploratory fieldwork and developed based on that the quantitative instrumentation (surveys). To deepen the understandings I applied participant observation during farm visits, on markets, meetings and events (Bernard, 2006; Miles et al., 2014).

I did **informal interviewing** intensively at the beginning of fieldwork. I interviewed mainly key informants of RECAB, but also producers, consumers and key informants from the other two cases. The purpose was to get a grasp of local reality (Figure 9).

Figure 9: Informal interviewing in the municipality of Marinilla (Antioquia) at the beginning of fieldwork.

I conducted **semi-structured interviews** with key informants of the respective PGS (expert sampling) to find out about the actors and the functionality. Based on the informal interviews and on Fonseca (2004), I conducted semi-structured interviews with consumers (n=5) and producers (n=8) to find out about the role of the consumer and the purposes, strengths and weaknesses as perceived by the producers of the PGS of Antioquia. The outcomes of those semi-structured interviews provided the basis for the **surveys**.

I discussed the first draft of the surveys with key informants and the supervisor of this thesis. I included comments and ideas for improvement and did the pretesting with four members of RECAB and an anthropologist friend. The final version of the survey built the basis for quantitative and qualitative cross-case analysis of the consumer's role in the PGS and producer's perception regarding purposes, strengths and weaknesses between the PGSs of Antioquia, Risaralda and Valle del Cauca. I conducted face to face surveys with consumers and producers, in most cases at the places of commercialization. I conducted the producers' interviews from Valle del Cauca, at a two-day event organized by the operator of the Valle PGS. I present information about the **surveys structure** in the next passages and in the original Spanish surveys in the annex (Bernard, 2006; Miles et al., 2014; Trochim, n.d.) (Table 7).

Table 7: Data sources. The numbers in the brackets indicate the number of sources (n) of that type per case. Total n = 112 (n per case Antioquia/Risaralda/Valle del Cauca: 43/29/40).

Data type	Producers	Consumers	Key informants	Farm visits	Markets	Meetings and Events
Semi-structured Interviews	8 (8/0/0)	5 (5/0/0)	6 (4/1/1)			
Surveys	25 (8/8/9)	61 (20/17/24)				
Participant Observation				5 (2/1/2)	4 (1/1/2)	5 (2/1/2)
Complete Observation				1 (1/0/0)		
Documents	Internal regulations & documentation of the PGSs					

I did two kinds of surveys: Consumer and producer surveys. I asked a series of Likert-scale and fixed-choice questions, but also left room for comments if the interviewees wanted to add something.

I divided the **consumers survey** into four parts:

In Part 1, I registered location and date. Then I asked a question if the respondent has heard about Participatory Guarantee Systems. If the respondent had heard about PGS he / she continued to answer Part 2-4 if the respondent had not heard about PGS, I left out Part 2.

In Part 2 I asked questions about the consumers' active participation in, their understanding of and their opinion about the PGS.

In Part 3 I asked questions if an oral guarantee system was perceived as sufficient or if more traceability of the products would be necessary. At the end of Part 3 I asked the consumers if and how often they visited farms (to get to know the agroecological production), and I asked them to rate their trust regarding the ecological quality of the products.

In Part 4 I asked questions about sociodemographic data. Next to questions about age, sex and education I asked about how often they bought agroecological / ecological products, for what reasons, if they were part in an organization and about their relational ties to producers.

I divided the **producers survey** into five parts:

In Part 1, I registered location and date.

In Part 2 I asked questions about the purposes of the PGS. The questions about the purposes were economic, social and technical in nature. At the end of Part 2 I asked the producers if and how often they visited farms in terms of training and in terms of certification. I also asked them to rate their general satisfaction with the implementation of the PGS.

In Part 3 I asked questions about the advantages of the PGS. The questions about the advantages were about economic, social, technical, ethical topics and about the validity of the PGS as a guarantee system.

In Part 4 I asked questions about the disadvantages of the PGS. The questions about the disadvantages were about economic, social, and technical topics and again about the validity of the PGS as a guarantee system.

In Part 5 I asked questions about sociodemographic data. Next to questions about age, sex and education I asked questions about their farm, how long they worked agroecologically / organically, for how long they were part of the PGS, if they worked as part-time farmers, where they were born, if their parents were famers and where they were from and last but not least if they consider themselves campesinos or neocampesinos.

I perceived **participant observation** as a crucial part of my research letting me enter local realities, getting to know potential interview partners, opening up possibilities for data collection and at the same time reducing the problem of reactivity. I had my research diary, a pen and my recorder to record information that appeared of substance for my research topic. My research partners gave me a working place, so that I was working, drinking coffee and eating lunch with them. This time was valuable to learn (at least partly) the local dialect, humor and about local organic / agroecological agriculture and the implementation of PGS. I was invited to present about Austria (including cooking Goulash for over 20 people) at RECAB's bureau and about organic agriculture in Austria and Europe at an Agricultural college in Medellin. I visited farms (Figure 10). One time as a full observer during internal inspection, recording the inspection with a voice recorder and taking field notes, other times to conduct interviews. Two times to stay for a longer period (three days & one month) – helping with farm activities and the selling of agroecological products – which eventually helped to grasp a slight idea what it meant to be a small scale producer in Colombia producing under the scheme of a PGS. I attended meetings and events such as a workshop for producers of the Antioquia PGS or a meeting at a university with professors, students and members of regional organizations that discussed the implementation of the PGS (Bernard, 2006).

Figure 10: I stayed one month in a small farm in the municipality of Andalucía (Valle del Cauca). In this particular moment I learned how to sharpen a machete.

I collected **documents**, such as internal regulations and documentation that contained potential information about the instrumentation of the PGSs and stored them for further analysis.

4.4. Data storage

I took field notes during informal interviews and participant observation that I processed to a report. Interviews were recorded with an audio recorder branded Voice Tracer (Philips).

I transcribed recorded interviews and recorded events during participant observation. I used the freeware easytranscipt 2.50.7 (e-werkzeug) for transcription. I decided to exclude telephone calls that interrupted the consultation. I paid no special attention to visual information such as facial expression and gesture. I paid careful attention to how things were said such as speed, tone of voice, timing and pauses. Transcription required substantial amount of time (around six to eight hours per hour interview) partly due to the fact that I did the interviews in Spanish. I encountered difficulties during transcription such as: Speed of talking, local dialects, interrupting of other people and interfering noise. I transcribed the interviews using standard Spanish. When it appeared important I rewrote selected expressions in local dialect in brackets (Bailey, 2008).

I entered the survey data in excel sheets, and prepared them after revision by the supervisor for analysis with SPSS.

4.5. Data analysis

Qualitative analysis

I coded the documents of the three cases, to identify, describe and analyze the actors (RQ 1) and the functionality (RQ 2) of the Participatory Guarantee Systems. I applied descriptive coding and in-vivo coding as **first-cycle coding methods** on hardcopy (Miles et al., 2014; Saldaña, 2012). First-cycle codes evolved into the first draft of a code list. I transferred the code list to Atlas.ti 7 (ATLAS.ti Scientific Software Development GmbH) and coded the rest of the documents, transcribed interviews and field reports. The technical aspect of coding with Atlas was accompanied by the practical handbook of Friese (2014). During **second-cycle** (and third- and fourth-cycle) **coding** the codes evolved into a more structured list (Table 16).

The analysis part was a bit tricky due to the language. The collected data was in Spanish, the coding system was set up in English, analysis in terms of thinking was conducted in three languages (English, German and Spanish) and written down in English. I translated from Spanish to English during the setting up of the code list and subsequent report writing (Nurjannah et al., 2014).

I outputted the coded data using Atlas.ti's Query tool. I analyzed and summarized the quotations that I collected to every code which led to a thick but sometimes repetitive description of the same aspects, but from different perspectives. This part of the analysis I did directly in the master thesis document and is referred to in the literature as Memo writing. That thick description I further condensed into tables, figures and dense reports allowing both a detailed internal description and cross-case comparison of the cases (Friese, 2014; Miles et al., 2014).

Quantitative analysis

I did quantitative analysis with IBM SPSS Statistics 23 (IBM). For the descriptive part of the quantitative analysis I outputted the percentages of the response frequency per item for the nominal variables. I described Likert items, due to their ordinal nature by the median (Mdn)

and the interquartile range (IQR) (Bertram, 2014; Subedi, 2016). Interval or ratio scaled variables I described with the arithmetic mean and the standard deviation.

To explore differences between the (nominal and ordinal) variables, I applied Chi-squared test and Fisher's exact test when the assumption for the chi-square test was violated (expected cell count < 5). Fisher's exact test is appropriate for small sample sizes (Voß, 2004). Originally Fisher's test was designed in a situation of a 2x2 contingency table, but the extension to larger contingency tables was outlined (Ghent, 1972).

I tested continuous variables for normal distribution using a Kolmogorov-Smirnov-test. To explore correlations between continuous variables I applied Pearson correlation if the variables were normally distributed. If not, and if I wanted to check a continuous variable with an ordinal one, or ordinal by ordinal, I applied Spearman correlation instead (Bühl, 2016). To interpret correlation coefficient r, I used grading as suggested by Table 8.

Table 8: Interpretation of different grades of correlation coefficient r. Adapted from Bühl (2016).

Value	Interpretation
till 0.2	Very weak correlation
till 0.5	Weak correlation
till 0.7	Moderate correlation
till 0.9	Strong correlation
above 0.9	Very strong correlation

If I found significant differences ($p < 0.05$) and the variables were not normally distributed, I applied Kruskal-Wallis H test and did a Dunn-Bonferroni post hoc test to check which groups differed significantly (UZH, 2016). If normality was given, I applied a 1-way Anova (Bühl, 2016).

I identified potentially related Survey items, based in my insights during exploratory fieldwork, qualitative analysis of the collected data sources and statements of key informants. I added potentially related variables from the producer surveys, to form three Likert Scales regarding the topics of Training, Satisfaction and Challenges. I used Cronbach's reliability coefficient α to measure the accuracy on how the single Likert items added up to the Scales and eliminated those who didn't (Bühl, 2016). Alpha values above 0.8 are described as desirable and values below 0.7 are commonly considered as too low (Schecker, 2013). Nevertheless, even if Cronbach's coefficient is far below 0.7, the Scale still might be of use if the "measure has other desirable properties, such as meaningful content coverage of some domain and reasonable unidimensionality" (Schmitt, 1996) (Table 9).

Table 9: Estimate of Likert scale reliability of the producers' surveys. Value of Cronbach's alpha can vary between 0 – 1. The higher the value of alpha the higher the estimated reliability.

Estimate of reliability of the Likert scale	Training Scale	Satisfaction Scale	Challenges Scale
Cronbach's alpha	0.631	0.841	0.662

4.6. Sociodemographic data

Around 52% of the **consumers** reported university as their level of education followed by secondary school (~26%), technical formation (~12%) and Primary school (10%) (Table 10).

80% reported to have a farming background, with around 23% either being active farmers or landless farmers, 20% of the consumers reported that their parents are or were farmers, around 37% reported that their grandparents are or were farmers. Only 15% reported to have no known farming background at all.

41% reported to be part of an organization. The reported array of organizations is very wide. Most reported to be part of an environmental organization or a producer's organization, but also religious organizations, human - and women's rights, and an organization that rescues street dogs were reported.

Producers reported secondary school and university as their level of education equally often (32%), followed by technical training (20%) and primary school (16%) (Table 11).

64% reported that they were married, 28% single and 4% divorced and widowed respective.

Producers of my sample worked on properties varying between 0.3 to 28 hectares. Thirteen farmers answered to have less than 3 hectares and nine have from 3 to 10 hectares to work with. In Risaralda there was one farm with 15 hectares and one with 28 hectares identified (Figure 11).

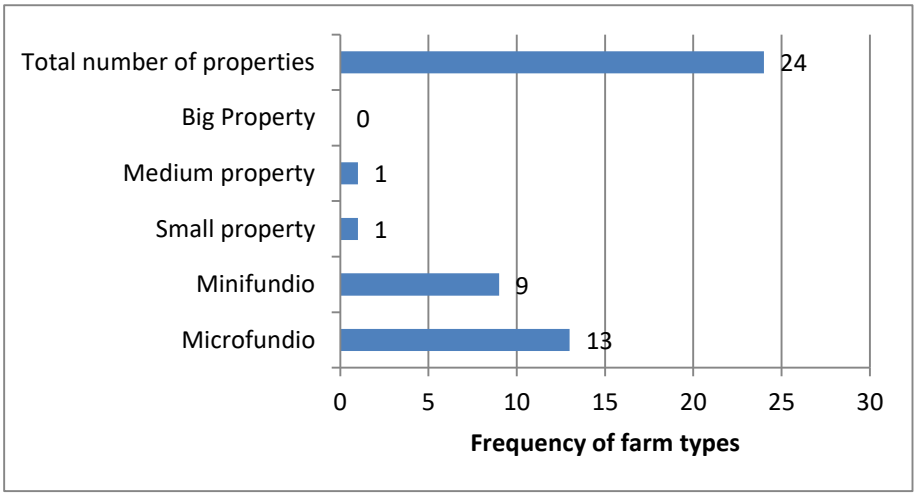

Figure 11: Frequency of farm types of the operations of the interview partners. n = 24 (n per case Antioquia/Risaralda/Valle del Cauca: 8/7/9).

One to thirteen people were reported to live in the farm, with a median of 4 (IQR=4). One to ten people were reported to work in the farm, with a median of 4 (IQR=4).

36% of the producers reported that they were taking a job apart from being a farmer, which means that 64% dedicated themselves only to farming.

64% reported that they were *campesinos*, 28% that they were *Neocampesinos* and 8% responded differently. PROC01 reported to be an agriculturist and PROC07 to be an academic.

76% of the male parents and 72% of the female parents were reported to be farmers.

Table 10: Sociodemographic data of consumers. A, B and C indicate the area, where the surveys have been conducted: A = Antioquia, B = Risaralda, C = Valle del Cauca. n = 61 (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24), x̃ = Median, IQR = Interquartile range; % of f = percentage of response frequency per item.

		TOTAL	**A**	**B**	**C**
Survey Item		**x̄**, *SD* *% of f*	**x̄**, *SD* % of f	**x̄**, *SD* % of f	**x̄**, *SD* % of f
Age		**46.4**, *15.99*	**45.5**, *13.38*	**46.2**, *19.49*	**47.4**, *15.89*
Sex	**Female**	44.3%	40.0%	41.2%	50.0%
	Male	55.7%	60.0%	58.8%	50.0%
Education	**Primary school**	10.0%	10.0%	12.5%	8.3%
	Secondary school	26.7%	20.0%	62.5%	8.3%
	University	51.7%	60.0%	25.0%	62.5%
	Technical formation	11.7%	10.0%	0.0%	20.8%
How many people are going to consume the products?	**Min**	1	2	1	1
	Max	8	7	8	8
	x̃, IQR	**4**, *3*	**4.5**, *2*	**3**, *5*	**4**, *3*
Farming background	**Farmer**	23.4%	20.0%	17.5%	30.4%
	Parents = farmers	20.0%	20.0%	23.5%	17.4%
	Grandparents = farmers	36.7%	45.0%	35.3%	30.4%
	No farming background	15.0%	15.0%	11.8%	17.4%
	Other	5.0%		11.8%	4.3%
Is the respondent part of an organization?	**Yes**	41.0%	50.0%	52.9%	25.0%
	No	59.0%	50.0%	47.1%	75.0%

Table 11: Sociodemographic data of producers. A, B and C indicate the area, where the surveys have been conducted: A = Antioquia, B = Risaralda, C = Valle del Cauca. n=25 (n per case Antioquia/Risaralda/Valle del Cauca: 8/8/9 x̃ = Median, IQR = Interquartile range; % of f = percentage of response frequency per item.

		TOTAL	A	B	C
Item		**x̄**, *SD* *% of f*	**x̄**, *SD* % of f	**x̄**, *SD* % of f	**x̄**, *SD* % of f
Age		**44.3**, *12.84*	**43.1**, *5.94*	**40.5**, *16.36*	**48.7**, *13.86*
Sex	**Female** **Male**	48.0% 52.0%	25.0% 75.0%	37.5% 62.5%	77.8% 22.2%
Education	**Primary school** **Secondary school** **University** **Technical formation**	16.0% 32.0% 32.0% 20.0%	37.5% 25.0% 25.0% 12.5%	0.0% 50.0% 37.5% 12.5%	11.1% 22.2% 33.3% 33.3%
Civil status	**Married** **Divorced** **Widowed** **Single**	64.0% 4.0% 4.0% 28.0%	100% 0.0% 0.0% 0.0%	12.5% 0.0% 12.5% 75.0%	77.8% 11.1% 0.0% 11.1%
Number of people that live in the farm	**Min** **Max** **x̃, IQR**	1 13 **4**, *4*	2 7 **3.5**, *4*	1 13 **4**, *3*	1 10 **4**, *5*
Number of people that work in the farm	**Min** **Max** **x̃, IQR**	1 10 **4**, *4*	1 7 **3**, *4*	1 7 **5**, *5*	1 10 **4**, *3*
Farm size (in ha)		**3.7**, *6.03*	**1.5**, *1.17*	**6.7**, *9.94*	**3.0**, *2.62*
Part time farmer	**Yes** **No**	36.0% 64.0%	50.0% 50.0%	37.5% 62.5%	22.2% 77.8%
Self-definition	**Campesino** **“Neocampesino”** **Other**	64.0% 28.0% 8.0%	62.5% 37.5% 0.0%	62.5% 37.5% 0.0%	66.7% 11.1% 22.2%
Where the parents of the respondent farmers?	**Father Yes** **Father No** **Mother Yes** **Mother No**	76.0% 24.0% 72.0% 28.0%	87.5% 12.5% 87.5% 12.5%	62.5% 37.5% 62.5% 37.5%	77.8% 22.2% 66.7% 33.3%

5. Results

5.1. Actors and their administrative functions across the regions

This chapter outlines the actors and their administrative functions of the PGSs across the regions based in interviews (KI1, 2, 3, 4), the record of a meeting in the national university of Palmira (Valle del Cauca) and the documents (DOC 1, 2, 3, 4) of the respective cases (Table 12).

Table 12: Key characteristics of actors identified in the Participatory Guarantee Systems of Antioquia, Risaralda and Valle del Cauca

Actor	Antioquia	Risaralda	Valle del Cauca
Coordinator	RECAB – non-profit organization	UTP, Institute of Environmental Investigations CARDER – regional environmental institution	*Red de Mercados Campesinos Agroecológicos del Valle del Cauca* – grassroot, non-profit organization
Producers	8 producers with certificate	14 producers with certificate	64 producers with certificate (market in Cali) 300 families in 12 markets
Consumers	Consumer participation: commercial activities, farm visits, Comité de gestores y de aprobación	Consumer participation: commercial activities, farm visits, members of the consumer and producer organization AGROSOLIDARIA and as part of the consumer – producer network of UTP	Consumer participation: commercial activities, formulation of rules, farm visits and in the *comité de dialogo del mercado*
Organizations	One producers' and consumers' organization (ASOCAMPO)	One producers' organization (CORA) and one producers' and consumers' organization (AGROSOLIDARIA)	Two producers' organizations (ASOPROORGANICOS and MERCOBUGA) 60 organizations in total, some of them informal
Foundation document	Published 2005 by RECAB in Medellin. 80 pages.	Published 2013 by UTP and CARDER in Pereira. 45 pages.	Published 2010 by Red de Mercados del Valle del Cauca. 20 pages.
Committees	(1) *Comité de Inspección* (2) *Comité de gestores y de aprobación* Members: (1): Inspectors that conduct farm visits (2): 1 person from the management of RECAB, Representatives of consumers, shops and food processors, Advisor of the project and 2 of the inspectors	(1) *Grupo local: Equipo de recepción* and *equipo de verificación*; (2) *Grupo de formación*; (3) *Grupo de Aprobación* Members: (1), (2), (3): Voluntary participation of members from UTP, CARDER and organizations	(1) *Comité de diálogo de la organización*; (2) *Comité de diálogo del mercado* Members: (1) At least 3 producers; (2) One representative of every Committee of every organization and 2 representatives of the consumers
Person in charge of farm visit, trainers, etc.	Inspectors, advisors and a person in charge of quality	The promotor, a member of the verification team, conducted farm visits	Farmers that should serve as an example were in charge of the farm visits

Place of commercialization		Agroecological market of ASOCAMPO in the muncipality of Marinilla	Agroecological market of UTP in Pereira Agroecological market of Otún Agroecological shop *El Cogollo* in Pereira Consumer – producer network of UTP	Eight agroecological markets in: Cali, Palmira, Dagua, Andalucía, Sevilla, Cartago, Restrepo and Tuluá Peasant markets in Buga and Roldanillo Markets in Tuluá and La Marina
Regional government		-	CARDER supported with funds and with human resources participating in workshops, committees and administering the PGS database	CVC supported with funds and in the participative development of the methodology
Universities		*Corporación Universitaria Lasallista*	*Universidad Tecnológica de Pereira* (UTP) *Universidad Rural y Agropecuaria de Colombia* (UNISARC), *Agrarian University of Colombia*	Universidad Nacional de Colombia – Sede Palmira (UNAL) National University of Colombia in Palmira
International movements	**IFOAM**	No formal relation	No formal relation	Registered in IFOAM database Published their PGS experience with IFOAM
	MAELA	Member of MAELA Colombia	Member of MAELA Colombia	Member of MAELA Colombia
National government		Recognition of the PGS by the state desired Organic norm was considered in the formulation of the rules	Total autonomy from the state claimed No consideration of the organic norm in the rules	Recognition of the PGS by the state yes, but regulation no. No consideration of the organic norm in the rules
Alternative certification experiences	**International**	Brazil, Peru	Argentina, Bolivia, Brazil, India, New-Zealand, Peru, United States,	Bolivia, Brazil, Ecuador, Mexico, Peru
	National	Atlantic coast, Risaralda	Atlantic coast, Antioquia, Valle del Cauca	Antioquia, Risaralda
	Regional	Boqueron	-	Organic peasant market in the city of Palmira

Antioquia

The name of the PGS of Antioquia was *Aval de Confianza* (Aval of Trust). The **coordinator** was RECAB, a non-profit organization. RECAB had history of working in the field of alternative certification as the date of publication (2005) of the internal regulation indicated (DOC1). In 2014, by the time of fieldwork, RECAB implemented a new version of the *Aval de Confianza.*

The **producers** cultivated for own consumption, for bartering and for sale. Producers could apply for the *Aval de Confianza* and for an ICS managed by RECAB and the participating organization ASOCAMPO. Twelve producers started the process and at the end of field work, eight producers had the certificate (KI1).

The PGS should be recognized by the **consumer** and stimulate its integration and participation (DOC1). Consumers came in contact with the PGS as buyers in the market of ASOCAMPO and during farm visits. Twelve consumers reported that they visited farms to get to know the production of the farmer and no consumer reported that he / she visited a farm to certify a producer (n=20) (Table 13). Consumers might not be aware of what a PGS actually is, as indicated by KI2: “Nobody of the consumers knows about what an *Aval de Confianza* is”. Nevertheless, some consumers appeared to be committed to the market and the local producers. One consumer pointed out that the state should promote agroecology and *la cultura campesina* (peasant culture) to raise the consumers’ awareness (CONA02). Another stated that he “recommended (the market) to many local people for health reasons” (CONA17). Three interviewed consumers of the Antioquia PGS reported to be members in the producers’ and consumers’ organization ASOCAMPO (CONA01, CONA03, CONA06). One representative of the consumers was a member of the committee that had to sign the certification (KI1).

Organizations were part in the formulation of the internal regulation of RECAB’s *Aval de Confianza* through the participation in workshops. The organizations decided which type of certification they wanted to achieve: Participatory certification through the PGS (*Aval de Confianza*) and/or TPC through an ICS. Organizations were responsible for informing and training producers in the norms of organic agriculture and the requirements for the PGS (or TPC in case the organization chose to). They were in charge of accompanying the farmers in the conversion period and to elaborate a conversion plan together with the farmers. RECAB facilitated alliances between the organizations and granted access to methodological tools that supported the process (DOC1). By the time of fieldwork there was only one active organization in the PGS of RECAB, which was ASOCAMPO - *Asociación de Productores Campesinos del Oriente Antioqueño* (Producers association of peasants from Eastern Antioquia) (KI1).

The internal regulation, the **foundation document** of the Antioquia PGS, was an agreement between consumers, producers, organizations and the coordinating organization RECAB itself. The document was drafted in 2005, by RECAB and had 80 pages. European Union and Colombian regulations regarding organic farming were studied (DOC1). Both ways of certification, the participatory and the ICS, were regulated through the same document of RECAB.

There were two **committees** in the structure of the PGS. There was the *Comité de Inspección* (Committee of Inspection), that was in charge of inspection and training of the participating farmers. Members of the committee were inspectors appointed by the *Comité de gestores y de aprobación* (Committee of operators and approval). Members of the latter were: One person from the management of RECAB, the person in charge of quality, one representative of consumers, one representative of shops and food processors, the advisor of the project and two inspectors. The *Comité de gestores y de aprobación* was in charge of evaluation, certification, sanctioning and the documentation of these processes (DOC1, KI1).

Unique to the PGS in Antioquia were clear defined roles (objective, requirements and tasks) regarding **inspectors, advisors** and a post that was called ***el encargado de calidad*** (the person in charge of quality) (DOC1).

Inspectors were in charge of conducting the internal inspection and filling out reports. The advisor was in charge of accepting new applications, explaining rules of organic production,

and formulating conversion plans. During my stay, RECABs internal inspectors conducted two complete rounds of farm visits, in terms of PGS (the first one was also for the ICS) certification.

El encargado de calidad had the objective of ensuring compliance with the rules of RECAB by all stakeholders and documenting the whole process (DOC1). This post could participate in nearly every step of the quality assurance system but an important part of that post was its function as a problem solver. For example, in one case an inspector reported that a farmer didn't make organic compost, a non-compliance in RECAB's internal regulation. Therefore, e*l encargado de calidad* investigated and found out that the farmer made organic compost but that he didn't measure the temperature according to the rules of RECAB's internal regulation. The problem was not with the farmer in not doing organic compost, but with the inspector in not describing the encountered non-compliance properly. In another case, inspectors reported, that they found non-allowed chemical inputs at a farm. Therefore, e*l encargado de calidad* investigated and found out that firstly they were not used, still sealed and secondly that they were there because a partner of the project delivered the wrong inputs. The solution was to remove the non-allowed chemical inputs from the farm (KI1).

The producers of Antioquia's PGS **commercialized** some of their produce in a little market, run by the producer's organization ASOCAMPO, in the municipality of Marinilla (Figure 12). In a farm visit I observed a polytunnel which was full with ripe and yet rotten tomatoes, Brassicaceae and herbs. The interviewee commented on that issue, that the project RECAB was implementing by that time, had not the responsibility of commercialization, but to guide the participating farmers in the process of certification (ICS and PGS). The farmers had the task to investigate for themselves possible ways of commercialization (KI1).

Consumer organized agroecological shops were selling in the name of RECAB and the shops were selling them as agroecological products with the logo of RECAB. A former version of the PGS was more informal. Back then, the shops called RECAB and asked them if the producer that wanted to sell the product is really a producer certified (by the *Aval de Confianza*) by RECAB. At a certain point the shop owners stopped calling (KI1). To respond to that issue, RECAB saw the necessity to protect themselves. Therefore, RECAB implemented the function of *el encargado de vender* (the person in charge for commercialization). Officially, members of the PGS of Antioquia sold their products over a producer who was *el encargado de vender*. This person was the only person that was allowed to bill the products certified by the PGS and the only one who had the official stamp of RECAB (KI1).

Figure 12: Market and meeting place of the producer's organization ASOCAMPO in the municipality of Marinilla.

Regional governmental institutions didn't support (for example with funding) the implementation of the PGS (KI1).

The recognition of Antioquia's PGS by the **national government** was an important goal (DOC1, DOC3, DOC4, KI1). The ministry of agriculture supported or participated in meetings where the topics of certification – conventional in terms of TPC and alternative certification were discussed (DOC1). RECAB wanted to get their PGS, the Aval de Confianza certified by a third party certifier: "We would like for the future not to be certified only by the Colombian norm, but also to get certified by the norm of RECAB". The objective behind that was to prove that "their PGS was certified and even stricter than the minimum requirements for the Colombian norm" (KI1).

Universities didn't know about RECAB's PGS and therefore didn't support it directly. Nevertheless, the *Corporación Universitaria Lasallista* administered the funding of a project, of which the implementation of the PGS was a part of (KI1).

RECAB was a member of **MAELA** (Moviemiento Agroecológico de América Latina y El Caribe) Colombia. MAELA describes itself as a movement that unites producers' organizations, small and medium scale producers, indigenous communities, landless farmers, and consumers that defend agroecological peasant agriculture (MAELA, n.d.). Different organizations of MAELA had an influence on the PGS of Antioquia through experience exchange during meetings and events. RECAB was in contact with members of MAELA *Mesoamerica*, MAELA Ecuador, MAELA Peru, MAELA Bolivia and MAELA *Cono Sur*. KI1 reported that these organizations of MAELA had little influence on the PGS of RECAB, in comparison with national PGS initiatives, that were also articulated to MAELA Colombia.

The foundation document was published in 2005, a time where the term PGS was just one-year-old, so there was no reference to other **PGS experiences** that had an impact on the

Antioquia PGS. (DOC1). Although, exchange did happen between the organizations (that implemented PGS already) of Peru and RECAB with the aim to discuss how alternative certification could be done in practice. Brazil was mentioned as the country where the name Participatory Guarantee System was born, as a necessity to group “all of them, because everybody called them by another name” (different alternative certification systems) (KI1).

On the national scale there was a PGS at the Atlantic coast (KI1). I have no specific information about that PGS, but that it was done with “natives from the coast”. KI1 expressed its favor towards that PGS because of its simplicity, it was considered “the simplest PGS they (Colombia) had and that it would be desirable to reach that simplicity”.

RECAB conducted an early version of the *Aval de Confianza* with farmers of *Boqueron* which is a subdivision of *San Cristóbal*. *San Cristóbal* is a village belonging to the rural area that surrounds *Medellín*. KI1 mentioned and exhibited historic documents about alternative certification on regional scale. I saw historical documentation from the committees and from training RECAB provided dating back till 2002. The same workshops RECAB developed and used back then, were slightly modified and still in use. I perceived that the experience gained from former alternative certification projects had an important impact on the current one which was confirmed by the interviewee (KI1).

Risaralda

The **coordinators** of the PGS experience of Risaralda were the Institute for Environmental Investigations of the Technological University of Pereira and CARDER, a regional environmental institution (DOC3, KI3). The PGS was in existence since 2013 (DOC3).

By the time of field work there were 14 **producers** with a certificate and three in transition (KI3). Producers took part in the formation of the Risaralda PGS through participation in workshops that contributed to the formulation of the document that conformed the PGS in Risaralda (DOC3).

Consumers interacted with the PGS as buyers in the markets, as members of the participating consumer – producer organization AGROSOLIDARIA, during farm visits and as being part of a consumer – producer network of UTP (KI3). Seven consumers responded that they visited farms to get to know the producer and three to certify the producer (n=17) (Table 13). In the pledge, the producer had to firm that they would establish fair prizes for the *amigo consumidor*, a term which was probably shaped by the Valle PGS, as they used that term earlier in time (DOC4). The producer had to furthermore sensitize the consumers and the community about the benefits of production and consumption of alternative products and to authorize farm visits conducted by the *amigo consumidor* to ensure the quality of the agroecological products (DOC3).

Producers and consumers, members of the **organization** AGROSOLIDARIA had an impact in the formation of the PGS (KI3). AGROSOLIDARIA was an organization that united farmers with the aim to provide a community of solidarity economy based in the principles of socioeconomic solidarity, agroecology and a fair trade relationship between countryside and city (AGROSOLIDARIA, 2015). AGROSOLIDARIA existed on a national scale but they had places in the different regions of the country. Members that were part of AGROSOLIDARIA section Risaralda engaged as participants of the committees, in meetings and conducted farm visits. CORA – *Corporación Regional Agroecológica* (Regional Corporation of Agroecology), a farmer’s organization that was known for their agroecological shop called *El*

Cogollo participated in the PGS as members of the committees, in meetings and farm visits (KI3).

Producers and consumers (members of organizations), students and representatives of UTP and CARDER participated in workshops that led to the **foundation document** of the Risaralda PGS. The document was published in 2013 by UTP and CARDER and had 45 pages (DOC3).

What in both other PGS were called **committees** were organized in *grupos* (groups) and *equipos* (teams) in the PGS of Risaralda. There was the g*rupo local* (local group) that consisted of the (1) *equipo de recepción* (reception team) and the (2) *equipo de verificación* (verification team), the (3) *grupo de aprobación* (approval group) and the (4) *grupo de formación* (training group) (DOC3, KI3). Membership in the *grupos* and *equipos* was voluntary and was filled with stakeholders from the institute of environmental investigations of UTP, CARDER and organizations. (1) The *equipo de recepción* was in charge to promote and explain the PGS to the producers, manage inscription and retirement and to pass the documents of that processes to the *equipo de verificación*. (2) The *equipo de verificación* informed the producers about the rules, took their pledge, managed the farm visit and passed the documentation to the *grupo de aprobación*. (3) The *grupo de aprobación* managed the certification. If a producer was not considered ready, or in case of non-conformities, they referred the producers to the *grupo de formación*. (4) The *grupo de formación* was in charge of the training of the participants about the processes in the PGS and about agricultural practices (DOC3).

The diverse actors of the *equipo de verificación* conducted the **farm visits**. The people in charge of farm visits were called *promotores* (promoters) (KI3).

Members of the PGS of Risaralda **commercialized** their products at the agroecological market of UTP (Figure 13), at the agroecological market of *Otún*, in the agroecological shop *El Cogollo* and in a consumer – producer network of UTP. The network had the purpose of forming a bridge between the producers and the consumers and creating therefore a “direct channel of commercialization”. The institute for environmental investigations of the UTP served as a platform: The producers reported the amount and type of produce they had for sale. This information was put into a database and was sent to all members of the UTP such as students, professors, administrates and lecturers. People interested in buying something wrote the amount in that database. Every second Thursday, the producers came and brought the ordered amount of produce to the institute. The consumers then came and collected their products or in some cases if they had an office, they had it delivered directly to their office (KI3).

Figure 13: Agroecological market of the Technical University of Pereira.

CARDER – *Corporación Autónoma Regional de Risaralda* (Regional Autonomous Corporation of Risaralda), is a **regional governmental** institution that is in charge to "administer the environment and renewable natural resources in the department of Risaralda" (CARDER, 2012). CARDER is the equivalent to CVC in the department of Valle del Cauca. CARDER supported the project (together with UTP) funding it, but also with human resources participating in workshops that lead to the construction of the PGS. Both UTP and CARDER were very important protagonists of the process. They were considered important not only in terms of accompanying the process, but also in terms of funding. For example, at the time of the interview (December 2014), the money which was needed for the PGS was not available. Furthermore, it was stated that both UTP and CARDER wanted to "accompany the process" and not to be the ones that "shape the process". It was perceived that the PGS could not "hold up on its own without the funding of" UTP and CARDER (KI3).

Two **universities** participated in the implementation of the PGS: UTP and UNISARC – *Universidad Rural y Agropecuaria de Colombia* (Agrarian University of Colombia). UTP and the institute of environmental investigations, together with students from UTP participated in the implementation of the PGS (KI3). UNISARC was also part of the project that led to the implementation of the PGS (DOC3).

KI3 claimed "total autonomy" from the **national government**. By the time the coordinators and the producers established the PGS, they didn't consider the state regulation for organic production, because there didn't exist a regulation by the state regarding PGS in Colombia. Nevertheless, a draft of the organic norm circulated, that considered to regulate PGS in Colombia. In its current version existed concerns, that the state was an entity that wanted to "take possession of (social) processes that have been created from bottom up (…), through regulation" (KI3). The key informant suspected that the communities that shaped the PGS would lose the sovereignty of their own PGS. He suggested a regulation that protects local

economies instead of regulating PGS where “only existed four PGSs that were visible, in Colombia” (KI3).

IFOAM had no formal relation with the PGS of Risaralda (KI3).

MAELA had no direct relation to the PGS although the institute of environmental investigations was a member of MAELA. A producer of the PGS assisted in the Latin-American forum of PGS organized by MAELA (KI3).

The methodologies of the **PGS experiences** of Argentina, Bolivia, Brazil, India, New-Zealand, Peru and from the United States contributed to the development of instruments for the evaluation of farms and products (KI3, DOC3).

On national scale, in the process of the construction of the Risaralda PGS, representatives of the Antioquia and the Valle PGS participated by presenting directly their PGS experiences (KI3). The Peruvian model together with the experience from Valle del Cauca served as models for a PGS in Risaralda (DOC3). A producer reaffirmed the last statement when he said: “The PGS of Risaralda is an offspring of the Valle PGS” (PROB08).

I found no evidence for influencing regional PGS experiences.

Valle del Cauca

The **coordinator** of the Valle PGS was the *Red de Mercados Campesinos Agroecológicos del Valle del Cauca* (Network of agroecological peasant markets of Valle del Cauca). From now on I refer to the coordinator of the Valle PGS simply as RED, due to the length of the full name. The RED was a grassroots organization, and existed legally as a non-profit organization since 2009. The PGS was implemented in 2009 (KI4).

At the time of field work, 64 **producers** were certified at the market in Cali (KI4). In total there were 288 families connected to twelve markets (Suárez Rendón, 2013).

Consumers interacted with the PGS as buyers in the markets, in the formulation of the rules, in the participation of the *comité de dialogo del Mercado* (see passage: Committees) and in farm visits. The approach between **consumer** and producer was crucial. Consumers were called friends – *el amigo consumidor* (KI4). The relationship went beyond sheer commercial aspects. The starting point of the PGS was the solidarity between producers and consumers. The latter visited the farms of the producers, and those visits contributed to the formation of the *Acuerdos de Vida* (Agreements of Life, principles, criteria and methods for the Valle PGS). Consumers participated in elaborating lists of prohibited, allowed and restricted products and procedures (DOC4). Eleven consumers reported that they visited farms to get to know the producer and no consumer reported that he / she visited a farm to certify the producer (n=24) (Table 13).

There were 60 **organizations** operating in the Valle PGS, some of them informal at the time of field work (KI4). The organizations conducted farm visits and covered the costs regarding farm visits and documentation (DOC4). KI4 gave examples of two organizations: ASOPROORGANICOS (Association of organic producers from Valle del Cauca) an association located in Cali, the capital of the Valle department, visited and certified 60 farmers. MERCOBUGA (Association of producers of a peasant market in Buga), conducted farm visits together with consumers at the time of field work.

The RED published the **foundation document** of the Valle PGS in 2010. The document had 20 pages. In the elaboration of the document participated producers, consumers, members of the corresponding organizations and the regional environmental authority – CVC (DOC4).

There were two types of **committees**: The *comité de diálogo de la organización* (committee of the organization) and the *comité de dialogo del mercado* (committee of the market). Members of the *comité de diálogo de la organización* were at least three producers, members of the local organization. Their job was to manage inscription, farm visits, authorization of the stamp and to pass the documentation to the committee of the market (DOC4, KI4).

Members of the *comité de dialogo del mercado* were one producer of every *comité de diálogo de la organización* connected to that market and two representatives of the consumers. Their job was to manage documentation they got from the *comité de diálogo de la organización*, decision making and to verify compliance with the rules at the market level (DOC4, KI4).

Little was found regarding **the person in charge of farm visit**, and nothing about **trainers** or a person **in charge of quality**. Farmers that participated in the *comité de diálogo de la organización*, like mentioned in the last passage were in charge of the farm visit (DOC4). Members of that committee were experienced farmers with certain level of leadership skills that should serve as example (KI4).

The producers operating in the Valle PGS **commercialized** their products on markets. There were twelve markets operating in the PGS of the network spread over the department (Figure 14). Eight markets were pure agroecological markets. Two were peasant markets, where agroecological products from producers of the RED were sold next to products from non-members. There were also two markets that were not neither pure agroecological markets, nor pure peasant markets but happened in the traditional marketplace – also known as *la plaza de mercado* (the market place) (DOC4). Most of the vendors there were intermediaries. Cali was the only market of the twelve that went through a process of documentation, certification and where its producers had the right to use the official stamp of the network. In other markets such as the one of Buga, the process was more informal: An organized farm visit of consumers for “conversation” was considered as a certification of trust. Nevertheless, the key informant stated, that farmers in all markets should have a certificate and that certified producers were needed for all markets referring to the “whole process” of proper documentation and regular farm visits (KI6).

Figure 14: Agroecological peasant market in Cali

CVC - *Corporación Autónoma del Valle del Cauca* (Autonomous corporation of Valle del Cauca), a **regional governmental institution** supported the agroecological peasant markets. CVC is in charge for the environment and the management of renewable natural resources in the Valle del Cauca region (CVC 2012). CVC is the equivalent institution of CARDER in the department of Risaralda. CVC was interested in the processes of alternative certification, and had the necessary economic resources. Together, a methodology for the PGS was elaborated. Problems arose in the implementation of the project when it was perceived, by members from the RED, that staff hired by CVC, tried to somehow dictate what the stakeholders had to do. Those problems were overcome as CVC worked closer with committed farmers, members of the RED (KI4).

The RED worked closely together with the group of investigation in agroecology of the National **University** of Colombia (UNAL) location Palmira. They conducted workshops and two projects together: One project had the aim to foment the agroecological market of Buga and the other to visualize the benefits of organic farming for the ecosystem. Pre-graduate, graduate and PHD students were involved in the relationship between UNAL and the PGS of the RED (KI4).

The **national government** of Colombia had an inhibiting influence on small holders and their possibility of selling their produce marked as organic through the organic regulation (Resolución 187/06) and with the logo for organic production in Colombia (Resolución 36/07) (KI4). Regarding a regulation of the PGS by the state, KI4 mentioned that they would prefer to exist independently from the state. They (the network) recognized themselves and the consumers recognized them. The state should only acknowledge, not regulate and concluded: “The PGS is ours. They shouldn’t stick their noses to our PGS. It is a criterion of autonomy”. KI4 perceived TPC as an instrument of external power, therefore it was necessary to present an alternative. With the implementation of the PGS they distanced themselves from TPC so why should they absorb principles from TPC if the network didn’t coincide with them. To foster that argumentation, he said that the network recently made a

simplification of the PGS from twelve to four tools. It was a necessity to construct own concepts, criteria and procedures that were more suitable for the region (KI4).

The RED presented their PGS experience in a publication of **IFOAM**. The RED was registered in the IFOAM PGS database (KI4).

The RED was member of MAELA Colombia. MAELA facilitated the exchange between different PGS experiences in Latin-America (KI4).

On an international scale, the **PGS experiences** of Brazil and Peru were acknowledged for their pioneering role. PGS experiences of Bolivia, Peru and Ecuador got together in a meeting between the PGS experiences of the Andean countries where the network presented the "*red de mercados*" (KI4).

KI4 presented his view on the other two PGS: RECAB was an entity that wanted to get their certification system "recognized by the ministry of agriculture" of Colombia and "like an NGO that worked with producers and facilitated organizational processes". He mentioned UTP and CORA, the regional corporation of agroecology, as key players of the Risaralda PGS. In contrast, the RED was a grass root organization with social aims and solidarity with the producers (KI4).

On regional scale, there was one local experience of certification based on trust: Five producers' organizations participated in the organic peasant market *Surcando sueños – frutos que dan vida* (Ploughing dreams – Life giving crops) conducted by CVC (DOC4).

5.2. The functionality of the PGSs across the regions – Elements and procedures

This chapter outlines the theoretical framework of the PGSs across the regions based in interviews (KI1, 3, 4), the record of a meeting in the national university of Palmira (Valle del Cauca) and the documents (DOC 1, 2, 3, 4) of the respective cases. The implementation of the theoretical framework was questioned by individual statements across the regions. A producer from Antioquia noted that "the PGS only existed in theory", "which had to be implemented yet"[1] (PROA06). A producer from Risaralda stated that "since six months it was quiet around the PGS" (PROB07). In Valle del Cauca only one market out of twelve (the market in Cali) went through the whole process of certification and documentation (KI4).

Antioquia

Producers addressed **inscription** at the management of the organization they belonged to or at the person in charge of quality. Inscription had to be in writing and they had to sign a pledge to comply with the rules.

Producers (1), the *Comité de gestores y de aprobación* (2), the internal inspectors (3) and the responsible of quality (4) received **training**. (1) Producers got trained by the organization they belonged to and by RECAB about conversion to organic or agroecological agriculture and about procedures of the PGS. (2) Members of the *Comité de gestores y de aprobación* received training by RECAB about norms in organic agriculture, report writing and management and interpretation of the documentation of the PGS (and ICS). (3) Inspectors received training by RECAB about norms in organic agriculture, inspection, management of

[1] By that time the PGS of Antioquia actually was in the first year of its implementation.

documentation and social interaction. (4) Those responsible for quality were trained about norms in organic agriculture.

Internal inspectors and / or the person in charge of quality conducted **farm visits** to check compliance of the rules two times a year. In the case that non-compliances occurred, the visits had to happen unannounced.

RECAB developed an **evaluation** system, based on a check list for self-assessment by the producer. The farmer himself or herself identified the degree of compliance. Inspectors evaluated that checklist with an instrument that considered agricultural, economic and social aspects. The results were presented in the nature of a traffic light: 4 to 5 points resulted in a green traffic light suggesting that the producer was organic; 3 to 3.9 points resulted in an orange traffic light suggesting that the producer was in transition to organic production and 1 to 2.9 points resulted in a red traffic light suggesting that the producer started the transition period to organic farming. Evaluation of the check list for self-assessment by the inspectors led to a report that received evaluation by the person in charge of quality. The person in charge of quality presented the evaluated report to the *Comité de gestores y de aprobación*.

Certification happened in the *Comité de gestores y de aprobación*. The members of the committee decided in a meeting based on the report of the internal inspection and the revision of the person in charge of quality if a producer got certified, not certified or sanctioned. In case of certification the *Comité de gestores y de aprobación* issued a **certificate** to the producers. The certificate was valid for six months. One producer, that was *el encargado de comercializar*, received a **stamp**. This person was the only person who was allowed to put the stamp on the bills of all eight producers.

The sanctions catalogue defined the **sanctions**. Inspectors suggested the sanctions after farm visit, if non-compliances were encountered. The *Comité de gestores y de aprobación* determined the sanctions. Inspectors and / or the advisor carried them out. Inspectors and / or the advisor read the sanctions together with the farmer and explained them if necessary. The farmer had the right to appeal. In case of a successful appeal, that could lead to a new internal inspection.

To facilitate **documentation**, the following lists were managed and stored by RECAB: List of the agroecological (and ecological) producers, list of producers in transition, list of sanctioned producers, list of internal inspectors and a list of the members of the *Comité de gestores y de aprobación* (Figure 15).

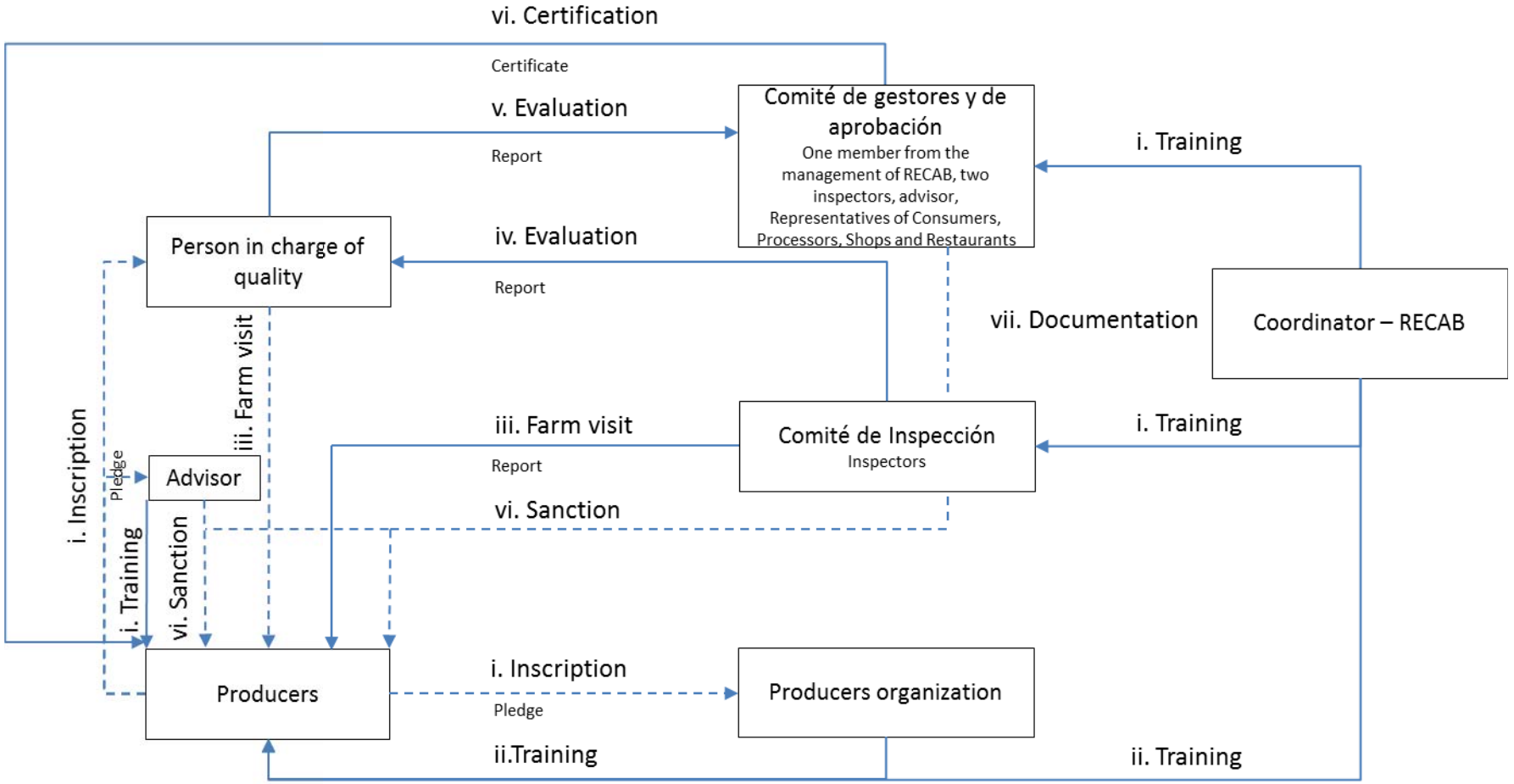

Figure 15: Functionality of the PGS of Antioquia ordered chronologically. General processes are depicted with dashed lines; optional processes with dotted lines.

Risaralda

Producers conducted **inscription** at the Reception committee, at the agroecological shop "*El Cogollo*" or at the agroecological market in the university. They filled out an inscription form and signed a pledge.

Producers attended **training**, in the form of courses, organized by the *grupo de formación*. In training producers learned about practices in agriculture and procedures of the PGS. The target audience was not only producers certified within the PGS but especially those that stayed in transition or that stopped complying with the rules.

Members of the *equipo de verificación* conducted the **farm visit**, based on a checklist to verify compliance with the rules. Farm visits were anticipated to be conducted two times per year.

The trainer that visited the farm conducted the **evaluation** of the producer, based on a checklist for evaluation. The trainer formulated a report where he presented a suggestion if the producer was considered ready or not ready for certification.

The *grupo de aprobación* conducted **certification**. They decided in a meeting based on the report of the inspection if the producer got certified or the status "in transition". In case of certification the producers got issued a **certificate** by the Approval group. The certificate was valid for six months. The Approval group gave out **stamps** to the producers. There were two types of stamps: One for "In Transition" and one for "Certified with Trust".

Compared to the other two PGSs there were **no sanctions** mentioned. In the case of observed non-compliance, the producers received increased training through the *grupo de formación*.

UTP, CARDER and CORA managed and stored a database of certified producers to facilitate **documentation** (Figure 16).

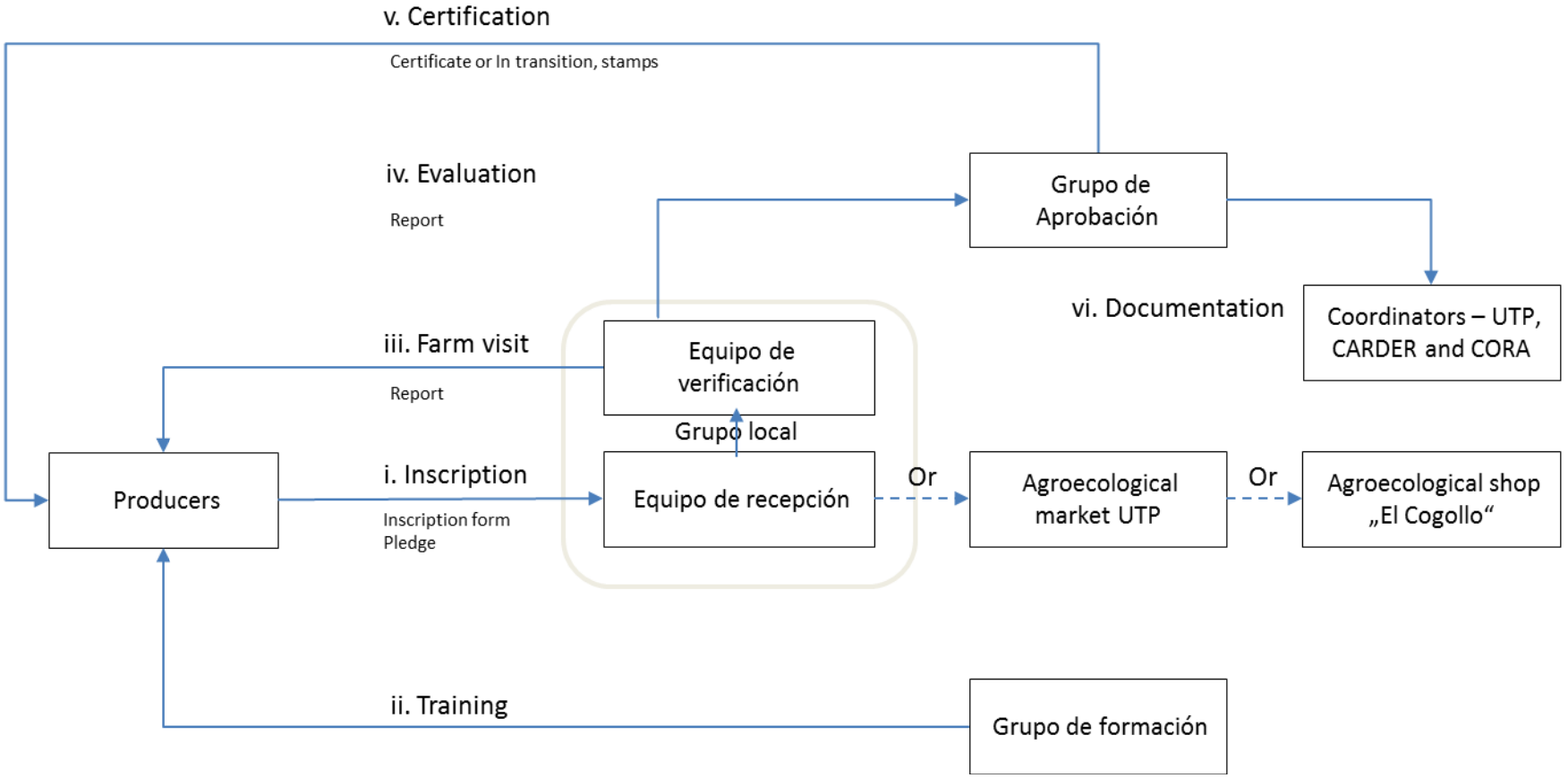

Figure 16: Functionality of the PGS of Risaralda ordered chronologically. General processes are depicted with dashed lines; optional processes with dotted lines.

Valle del Cauca

Before producers could inscribe themselves in the PGS they had to receive **training**. Producers attended training courses and received guidance in agroecology by institutions that were working with agroecology. Members of the committees got trained by the coordination group of the RED about their duties.

Producers applied for **inscription** at the committee of the organization. They had to sign a pledge, present evidence for workshop participation and submit a draft of the farm.

Members of the *Comité de diálogo de la organización* (producers) and of the *Comité de diálogo del mercado* (producers and consumers) conducted **farm visits**. To check compliance with the rules and therefore generate trust they used a check list. Farm visits were anticipated to be conducted at least 2 times a year but if necessary even more often. According the rules, the visits had to happen unannounced.

The *Comité de diálogo de la organización* did the **evaluation** based on the farm visit. In a report the committee depicted if the producer was allowed to use the stamp or not and reported their result to the *Comité de diálogo del mercado*. The *Comité de diálogo de la organización* handed out the **stamp.** Producers could use the stamp after the farm visit by the committees and had to be renewed every year.

The coordinator of the RED formally conducted **certification**, as they approved the decision of the *Comité de diálogo de la organización* based on the report of the *Comité de diálogo del mercado*. The coordinator of the RED handed out a **certificate** to the producers in case of certification. The certificate was valid for twelve months.

There was only one **sanction** reported: If it could be proven that a producer intentionally cheated, he could get evicted from the organization. He lost therefore the right to use the logo of the network and it was prohibited to sell his products in any of the markets.

The *Comités de diálogo del mercado* facilitated **documentation** through the systematization and organization of documents (Figure 17).

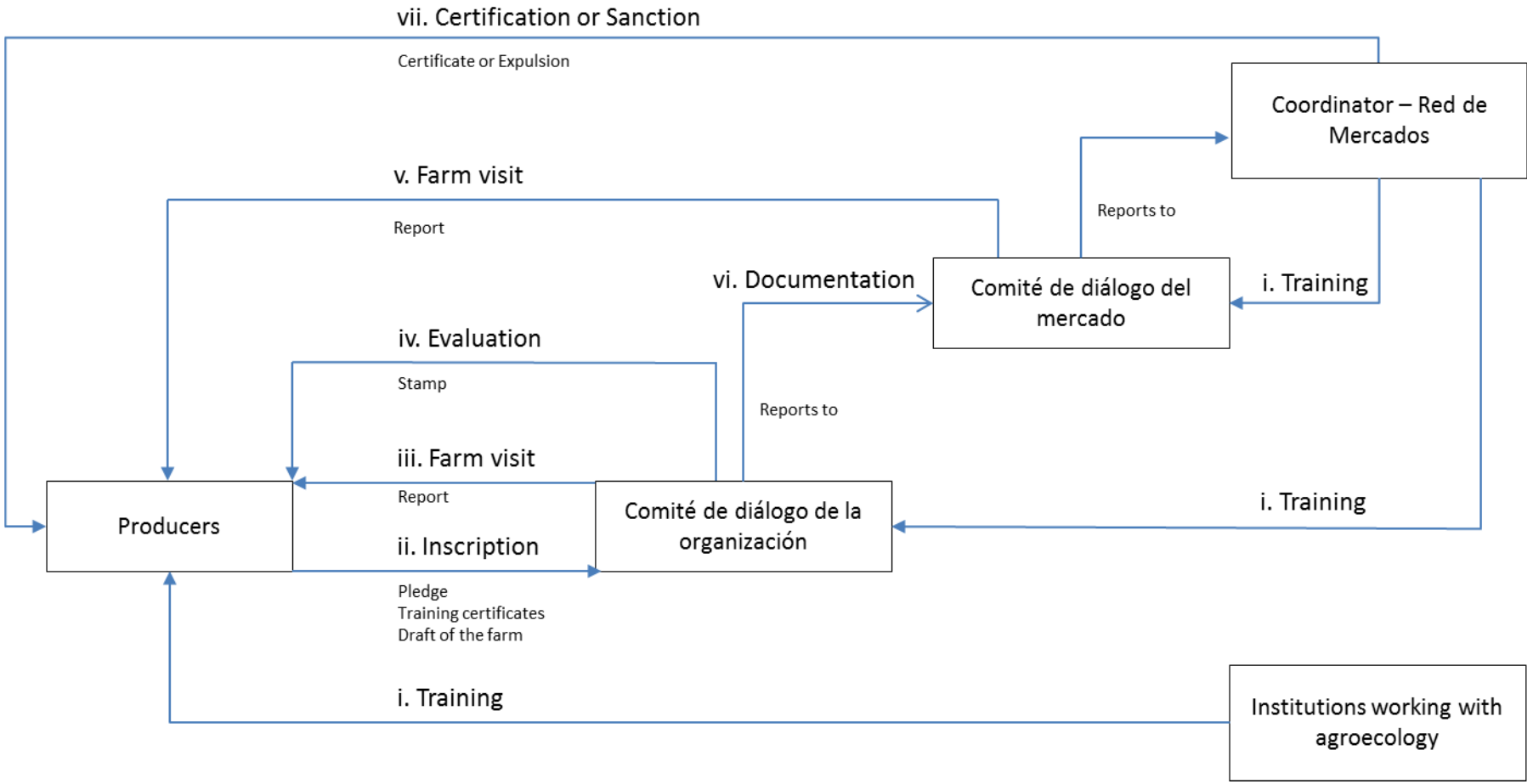

Figure 17: Functionality of the PGS of Valle del Cauca ordered chronologically. General processes are depicted with dashed lines; optional processes with dotted lines.

5.3. The consumers' perception on the PGS

Buying behaviour and reasons for buying organic / agroecological products

Eighty % of the consumers reported to buy the PGS certified products for their family. 11.7% reported to buy the products only for their own consumption. There was a difference across the regions (p_{Fisher} = 0.027*). In Risaralda more people than expected bought products for their own consumption (z = 2.849, p = 0.026*) and less than expected for their family (z = -2.773, p = 0.034*). One to eight people (Mdn=4, IQR=3), were reported to be the ones that were going to consume the purchased products. Sixty-three % reported to buy agroecological / organic products **one time per week**, around 12% bought the products **less than one time per month**. There was a difference across the regions (p_{Fisher} = 0.007**). Consumers from Risaralda reported less than expected, that they bought agroecological products **one time per week** (z = -3.110, p = 0.029*) and tended to report more than expected, that they bought them **less than one time per month** (z = 2.849, p = 0.066).

The most important reasons for buying agroecological products were health reasons (~97% of all interview partners), followed by environmental reasons and reasons to support the peasantry (both ~33%). Only around 11% reported animal reasons. 36% reported other than the presented reasons for buying agroecological products with reasons regarding the taste of the products prevailing.

Awareness and Participation

Twelve consumers (19.7%) reported to have heard about the PGS, 49 (80.3%) have not heard about it. Low awareness about the term PGS is observed across all three cases: In Antioquia six consumers, in Risaralda four consumers and in Valle del Cauca two consumers have heard about PGS. The difference in consumer awareness about the PGS between the regions is not significant (p_{Fisher} = 0.169).

From the group of consumers that answered to have heard about PGS, nobody responded to participate as an inspector or in a committee but three consumers of Antioquia and one consumer from Valle del Cauca stated that they participated in another way. The mentioned types of participation in Antioquia were: being a member of the administration of a producers' organisation (CONA01), giving technical advisory to members of the PGS (CONA06) and participation through "getting to know (and) learning" (CONA03). One consumer of Valle del Cauca reported that he participated in "discussing with the producers" (CONC20).

In Antioquia and Valle del Cauca no consumer reported to participate in farm visits in terms of certification. In Risaralda two consumers reported that they participated in farm visits in terms of certification – both of them stated that they participated five times (CONB03, CONB12).

Most consumers, of those that have heard of the PGS (n = 11), indicated strong agreement to the statement that they personally knew the certified producers (Mdn=4.5, IQR=2). Three consumers indicated that they did not.

Opinion seemed to be divided according the statement, that the interviewee had influence in the taking of decisions in the PGS / Aval de Confianza. Five consumers agreed or strongly agreed, four disagreed or strongly disagreed and one was unsure (Mdn=3.5, IQR=3).

Most consumers disagreed on the statement that their participation in the certification process was not important (Mdn=1, IQR=1). The opinion regarding the active participation in the PGS seemed to be divided although high disagreement with that statement prevailed (Mdn=1, IQR=4).

The results about low consumer awareness and participation are underlined by an expert of Antioquia who said: “Nobody of the consumers knows what a (PGS) is.” The people don’t trust in the logo, but they trust in the organization that coordinates the PGS (KI2).

Forty-eight % of the consumers responded that they did visit farms and 52% responded that they did not visit farms in terms of getting to know the production of the members of the PGS. The occurrence of farm visits was reported in Antioquia with 60%, followed by Valle del Cauca with 45.8% and Risaralda with 37.5%. The difference in farm visits within the cases is not significant (p_{x^2} = 0.397). The quantity of farm visits is (p_{fisher} = 0.028*). Post-hoc testing showed that four consumers of the Antioquia PGS reported that they visited farms more than 5 times (z = 2.857, p = 0.051), in the other two no one visited farms that often.

Consumers (n=11) strongly agreed on both statements that the PGS helped to connect the consumers with the producers (Mdn=5, IQR=2) and that the PGS helped to make the producers work visible (Mdn=5, IQR=1).

A farm visit by consumers that visited a farm to get to know the production of the producer and therefore believed in the organic quality of the product, was a certification by trust (KI6).

Trust in the “organicness” of the products

Consumers trusted, that the products were really organic, across the three cases (Mdn=4, IQR=1). The region had no significant influence in the trust level reported by the consumers (p_{fisher} = 0.190) (Figure 18).

Despite the trust of the consumers in the “organicness” of the products, some expressed doubts. Consumers indicated that “you couldn’t trust everybody” (CONC07) and that “cheating existed, but not all would cheat” (CONC08). Some highlighted that “through the word of mouth, (he) knew which producer was producing organic and which not” (CONC06), and “depending on the producer, the word of the producer had to be verified” (CONA07).

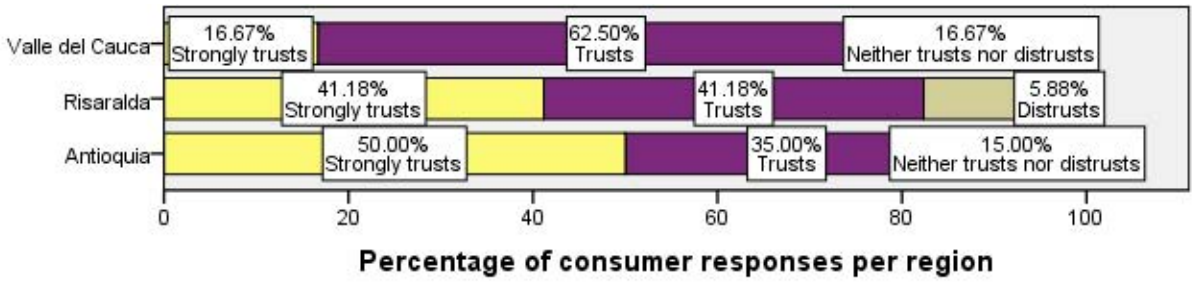

Figure 18: Level of trust reported by consumers to the question: How strong do you trust that the products are really organic? Possible answers: Totally distrust, distrust, neither trust nor distrust, trust and strongly trust. p_{fisher} = 0.190, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

Relationships between level of trust and survey items across the cases

Gender showed to have a significant relation to the level of trust (p_{x^2} = 0.036*). Post-hoc testing showed that there was a tendency of women being underrepresented in the low to

medium trust category (z = -2.594, p = 0.058) while men being overrepresented (z = 2.549, p = 0.058). Only one women (CONC12) reported medium trust in the organic quality of the products. No woman reported low trust (Figure 19).

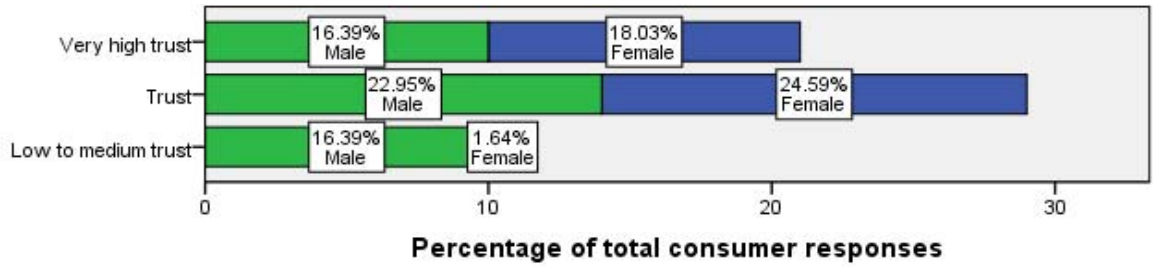

Figure 19: Level of trust relating to gender. p_{x^2} = 0.036*, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

The level of trust showed a significant relationship to the statement: “If the producer says that the product is organic I believe him a 100%” (p_{x^2} = 0.034*) (Figure 20). Post-hoc tests showed that consumers that didn’t believe in an oral assurance by the producers, that the product was really organic, were more likely to report a low to medium level of trust (z = 3.240, p = 0.007**), than those who did (z = -2.536, p = 0.067).

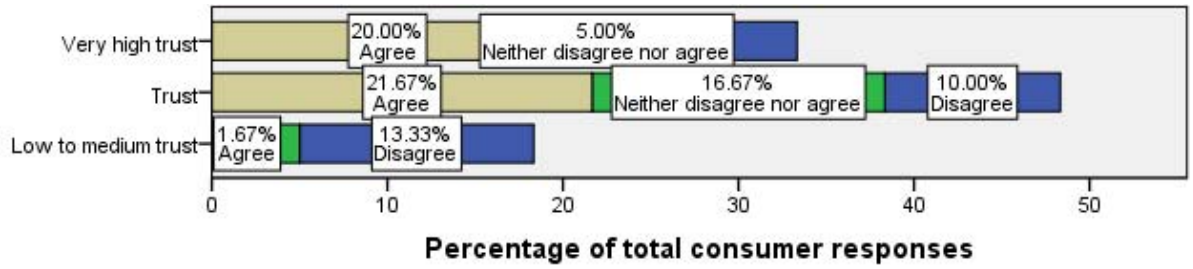

Figure 20: Level of trust relating to the statement “If the producer says that the product is organic I believe him a 100%” p_{fisher} = 0.034*, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

If consumers visited a farm or not tended to have a relationship to the reported trust level (p_{x^2} = 0.095) (Figure 21).

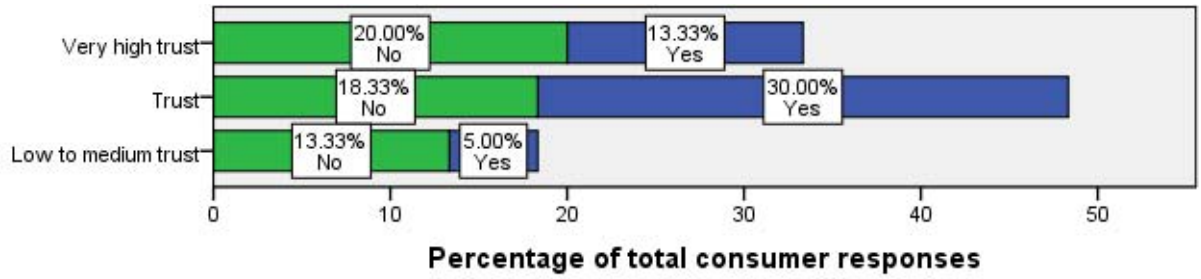

Figure 21: Level of trust relating with consumers that visited farms p_{x^2} = 0.095, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

More than 80% of the consumers agreed that a higher traceability (compared to the status quo) was necessary. That looks so striking, that I want to explore that topic in more detail (Figure 22).

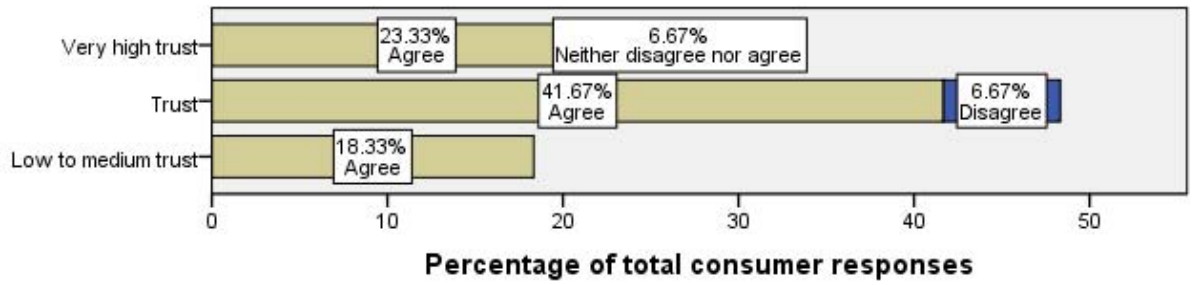

Figure 22: Level of trust relating to the answers to the statement: “It is necessary to establish a system with a higher traceability (compared to the status quo) of the agroecological product” p_{fisher} = 0.218, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

The necessity for increased traceability versus an oral assurance as perceived by the consumers across the regions

Consumers across the regions strongly disagreed to the statement that the organic production was particularly a lie (Mdn=1, IQR=1).

Opinion seemed to be divided across the statement: “I don’t care about traceability” (Mdn=4, IQR=3). A Kruskal-Wallis test showed that the agreement with the statement differed across the regions (Chi-Square(2) = 25.899, p = 0.000**). A post-hoc test (Dunn-Bonferroni-Test) showed that consumers from Valle del Cauca cared more about traceability than consumers from Risaralda (z = 4.821, p = 0.000**) and from Antioquia (z = 3.530, p = 0.001**) (Figure 23).

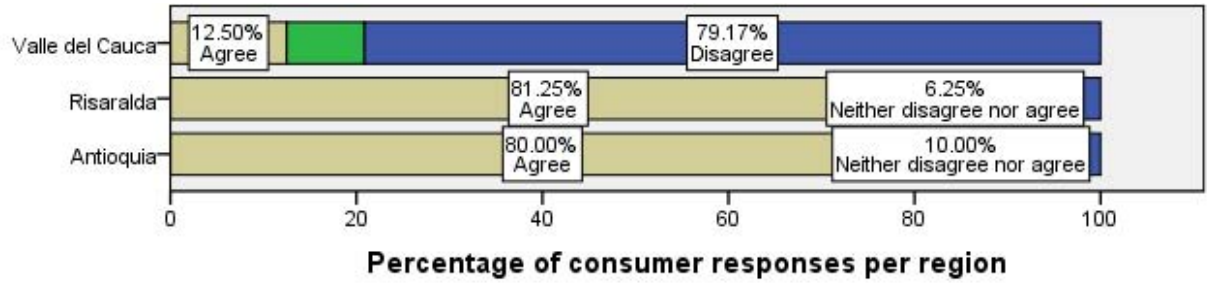

Figure 23: Consumer responses within the cases, to the statement: “I don’t care about traceability.” p_{fisher} = 0.000**, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

Opinion seemed to be divided across the statement: „If the producer says that the product is organic I believe him a 100%” (Mdn=3, IQR=3). The trust in the word of the producer tended to differ across the regions (p_{x^2} = 0.059). The odd thing about the responses to that statement is, that 41.7% of the consumers in the Valle region were unsure how they felt about an oral assurance (z = 2.434) (Figure 24).

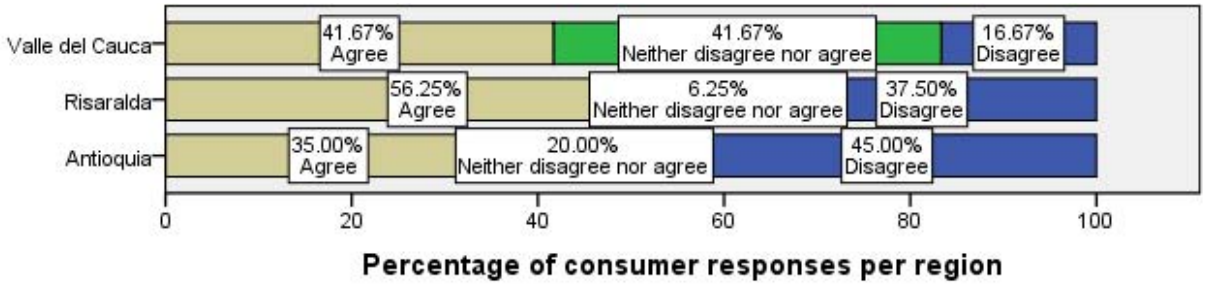

Figure 24: Consumer responses within the cases, to the statement: „If the producer says that the product is organic I believe him a 100%." p_{x^2} = 0.059, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

Opinion seemed to be divided across the statement: „ A guarantee system that is based on the word of the producer is enough in our case." (Mdn=3, IQR=3). There was no significant difference in the opinion across the regions (p_{fisher} = 0.249). In Risaralda and Antioquia half and in Valle 33.3% of the respondents didn't share the opinion that a guarantee system that was based in the word of the producer was enough for their PGS. The percentage of agreement to the statement was 54.2% in Valle, 45.0% in Antioquia and 44.0% in Risaralda. (Figure 25).

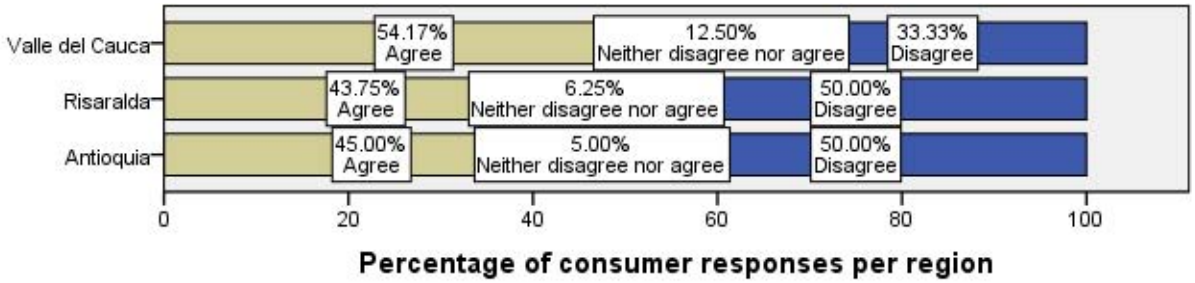

Figure 25: Consumer responses within the cases, to the statement: „A guarantee system that is based in the word of the producer is enough in our case." p_{fisher} = 0.783, n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24).

Table 13: Overview of the responses to the consumer surveys and consumer trust interaction effects. A, B and C indicate the area, where the surveys have been conducted: A = Antioquia, market in Marinilla; B = Risaralda, market in Pereira; C = Valle del Cauca, market in Cali. f = response frequency per item. n = 61 = 100% (n per case Antioquia/Risaralda/Valle del Cauca: 20/17/24). x̃ = Median of the Likert scale ranks, IQR = Interquartile range; % of f = percentage of response frequency per item. p = p value, statistically significant at a level of 0.05 marked with a *. Statistical tests used (Item No 26 – 48): Chi-square (x^2) and Fisher's exact (Fi) test in case that more than 20% of the cells had an expected count less than 5. Items No 5-13 and 17-22 are Likert type questions. Respondents could answer according the following scale: 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree. The possible answers to item number 25 were a 5-digit smiley scale translating into: 1 = Strong distrusts, 2 = Distrusts, 3 = Neither trusts nor distrusts, 4 = Trusts, 5 = Strongly trusts.

			TOTAL	**A**	**B**	**C**	**f**
Item No	Survey item		**x̃**, *IQR* % of f p	**x̃**, *IQR* % of f p	**x̃**, *IQR* % of f p	**x̃**, *IQR* % of f p	(A/B/C)
1	For whom does the respondent buy PGS products on the market?	Own consumption	11.7%	0.0%	31.3%	8.3%	60 (20/16/24)
		Family	80.0%	95.0%	56.3%	83.3%	
		Other	8.3%	5.0%	12.5%	8.3%	
			0.027* (Fi)				
2	How often does the respondent buy agroecological / organic products?	> 1 time / week	8.3%	5.0%	18.8%	4.2%	60 (20/16/24)
		1 time / week	63.3%	80.0%	31.3%	70.8%	
		Every two weeks	6.7%	0.0%	6.3%	12.5%	
		1 time / month	10.0%	15.0%	12.5%	4.2%	
		< 1 time / month	11.7%	0.0%	31.3%	8.3%	
			0.007** (Fi)				
3	Reasons for buying agroecological products	Health	96.7%	100%	88.2%	100%	61 (20/17/24)
			0.074 (Fi)				
		Environment	32.8%	30.0%	35.3%	33.3%	
			1.000 (Fi)				
		Animal ethics	11.5%	20.0%	0.0%	12.5%	
			0.155 (Fi)				
		Support peasantry	32.8%	35.0%	23.5%	37.5%	
			0.658 (Fi)				
		Other	36.1%	45.0%	47.1%	20.8%	
			0.144 (Fi)				
4	Have you heard about the PGSs / the Aval de Confianza?						
	Yes		19.7%	30.0%	23.5%	8.3%	61 (20/17/24)
	No		80.3%	70.0%	76.5%	91.7%	

		0.169 (Fi)				
5	The PGS / Aval de Confianza doesn't work in reality.	**2**, *1* 0.610 (Fi)	**2**, 2	**2**, -	**2.5**, -	11 (6/3/2)
6	I actively participate in the PGS.	**1,** *4* 0.848 (Fi)	**2.5,** *3*	**1.5,** -	**1.5,** -	11 (6/3/2)
7	I received training about the nutritional value of agroecological products.	**4.5,** *3* 0.210 (Fi)	**5,** *2*	**4.5,** -	**2,** -	11 (6/3/2)
8	My participation in the certification process is not important.	**1,** *1* 0.088 (Fi)	**1,** *1*	**3.5,** -	**3.5,** *0*	11 (6/3/2)
9	The PGS / Aval de Confianza helps to connect the consumers with the producers of the PGS.	**5,** *2* 0.139 (Fi)	**5,** *0*	**3.5,** -	**3,** -	11 (6/3/2)
10	The PGS / Aval de Confianza helps to make the producers work visible.	**5,** *1* 0.188 (Fi)	**5,** *0*	**4.5,** -	**3,** -	11 (6/3/2)
11	I don't understand anything about how the system works.	**2,** *2* 0.087 (Fi)	**1,** *1*	**3.5,** -	**2.5,** -	11 (6/3/2)
12	I personally know the certified producers.	**4.5,** *2* 0.182 (Fi)	**4.5,** *1*	**3,** -	**3**, -	11 (6/3/2)
13	I have influence in the taking of decisions in the PGS / Aval de Confianza.	**3.5,** *3* 0.416 (Fi)	**2.5,** *3*	**5,** -	**2.5,** -	10 (6/2/2)
14	Type of Participation in the PGS: Inspector Committee Other No participation apart from buying PGS products	 0.0% 0.0% 36.4% 63.6% 0.409 (Fi)	 0.0% 0.0% 50.0% 50.0%	 0.0% 0.0% 0.0% 100%	 0.0% 0.0% 50.0% 50.0%	11 (6/3/2)
15	Did you visit farms to certify producers of the PGS? Yes No	 18.2% 81.8% 0.073 (Fi)	 0.0% 100%	 66.7% 33.3%	 0.0% 100%	11 (6/3/2)
16	How often did you visit farms to certify producers of the PGS? 1-2 times 3-5 times More than 5 times or when the respondent reported "muchas veces" (a lot of times)	 0.0% 100% 0.0%	 0.0% 0.0% 0.0%	 0.0% 100% 0.0%	 0.0% 0.0% 0.0%	2 (0/2/0)
17	The organic production is particularly a lie.	**1,** *0* 0.065 (Fi)	**1,** *0*	**1,** *3*	**1,** *0*	60 (20/16/24)
18	A guarantee system that is based in the word of the producer is enough in our case.	**3,** *3* 0.249 (Fi)	**2.5,** *3*	**2.5,** *3*	**4,** *3*	60 (20/16/24)

19	It is necessary to establish a system with a higher traceability of the agroecological product.	**4,** *1* 0.000** (Fi)	**4,** *1*	**5,** *0*	**4,** *1*	60 (20/16/24)
20	I don't care about traceability.	**4,** *3* 0.000** (Fi)	**4,** *0*	**5,** *0*	**2,** *1*	60 (20/16/24)
21	If the producer says that the product is organic I believe him a 100%.	**3,** *3* 0.059 (Fi)	**3,** *3*	**4,** *3*	**3,** *2*	60 (20/16/24)
22	I am very interested in getting training about healthy consumption.	**5,** *1* 0.108 (Fi)	**5,** *1*	**5,** *2*	**5,** *1*	60 (20/16/24)
23	Did you visit farms to get to know the agroecological production of the members of the PGS?					
	Yes	48.3%	60%	37.5%	45.8%	60 (20/16/24)
	No	51.7%	40%	62.5%	54.2%	
		0.397 (x^2)				
24	If the answer to the last question was yes: How often?					
	1-2 times	29.3%	35.0%	12.5%	36.4%	58 (20/16/22)
	3-5 times	10.3%	5.0%	25.0%	4.5%	
	More than 5 times or when the respondent reported "muchas veces" (a lot of times)	6.9%	20.0%	0.0%	0.0%	
	Never	53.4%	40.0%	62.5%	59.1%	
		0.028* (Fi)				
25	How strong does the respondent trust that the products are really ecologic?	**4,** *1* 0.190 (Fi)	**4.5,** *1*	**4,** *1*	**4,** *0*	61 (20/17/24)
26	Trust x Region	0.190 (Fi)	-	-	-	61
27	Trust x Sex	0.036* (x^2)	0.324 (Fi)	0.358 (Fi)	0.265 (Fi)	61 (20/17/24)
28	Trust x University degree	0.461 (x^2)	0.023* (Fi)	0.792 (Fi)	0.341 (Fi)	60 (20/16/24)
29	Trust x Relational ties to producers	0.407 (Fi)	0.571 (Fi)	0.056 (Fi)	0.698 (Fi)	59 (20/17/22)
30	Trust x Membership in an organization	0.943 (x^2)	0.332 (Fi)	1 (Fi)	0.797 (Fi)	61 (20/17/24)
31	Trust x Membership in an environmental organization	0.392 (Fi)	1.000 (Fi)	0.714 (Fi)	1.000 (Fi)	25 (10/9/6)
32	Trust x PGS Awareness	0.358 (Fi)	0.123 (Fi)	1 (Fi)	0.620 (Fi)	61 (20/17/24)
33	Trust x Farm visit	0.095 (x^2)	0.699 (Fi)	0.441 (Fi)	0.262 (Fi)	60 (20/16/24)
34	Item No 2 x Trust	0.492 (Fi)				11 (6/3/2)
35	Item No 3 x Trust	0.735 (Fi)				11 (6/3/2)
36	Item No 4 x Trust	0.129 (Fi)				11 (6/3/2)
37	Item No 5 x Trust	0.636 (Fi)				11 (6/3/2)
38	Item No 6 x Trust	0.045* (Fi)				11 (6/3/2)
39	Item No 7 x Trust	0.114 (Fi)				11 (6/3/2)
40	Item No 8 x Trust	0.058 (Fi)				11 (6/3/2)

41	Item No 9 x Trust	0.076 (Fi)				11 (6/3/2)
42	Item No 10 x Trust	0.714 (Fi)				11 (6/3/2)
43	Item No 17 x Trust	0.697 (Fi)	0.500 (Fi)	1.000 (Fi)	0.375 (Fi)	60 (20/16/24)
44	Item No 18 x Trust	0.830 (Fi)	0.321 (Fi)	0.918 (Fi)	1.000 (Fi)	60 (20/16/24)
45	Item No 19 x Trust	0.218 (Fi)	0.516 (Fi)	0.562 (Fi)	0.588 (Fi)	60 (20/16/24)
46	Item No 20 x Trust	0.181 (Fi)	0.870 (Fi)	0.134 (Fi)	0.435 (Fi)	60 (20/16/24)
47	Item No 21 x Trust	0.034* (Fi)	0.090 (Fi)	0.123 (Fi)	0.595 (Fi)	60 (20/16/24)
48	Item No 22 x Trust	0.799 (Fi)	1.000 (Fi)	0.388 (Fi)	1.000 (Fi)	60 (20/16/24)

5.4. The producers' perception on the PGS

Farm visits & training

A crucial part of all three PGSs are farm visits. The reasons why they are so important and why they are conducted in the first place are manifold. Farm visits contribute to the "awareness rising of consumers" (PROA05) and they are important "in terms of training, to see how others (producers) are working" (PRODA06). And then there are farm visits in terms of certification (KI6), they are "especially important when there are rumors about fraud" (PRODC05).

Forty-eight % of the interviewed producers reported that they have visited farms to certify the production of other producers. There was no difference across the regions if producers visited a farm for certification or not (p_{fisher} = 0.286). 16.7% of those that visited farms, reported that they visited 1-2 times, 41.7 % reported that they visited 3-5 times and more than 5 times respective. (Table 15, Item No 4 and 5).

Ninety-two % of the interviewed producers reported that they visited farms to get to know the production of the other producers. All of the producers of Risaralda and Valle del Cauca and 75% of Antioquia's producers visited farms to get to know the production of others. The differences across the regions were not significant either (p_{fisher} = 0.187). 17% of those that visited farms, reported that they visited 1-2 times, 26% reported that they visited 3-5 times and 57% reported that they visited more than 5 times (Table 15, Item No 2 and 3).

Opinion seemed to be divided regarding the statement, that consumers would receive enough training about topics that have to do with the PGS. Ten producers agreed or strongly agreed, seven disagreed or strongly disagreed and eight were unsure (Mdn=3, IQR=2). The agreement with the statement did not differ significantly across the regions (p_{fisher} = 0.184) (Figure 26).

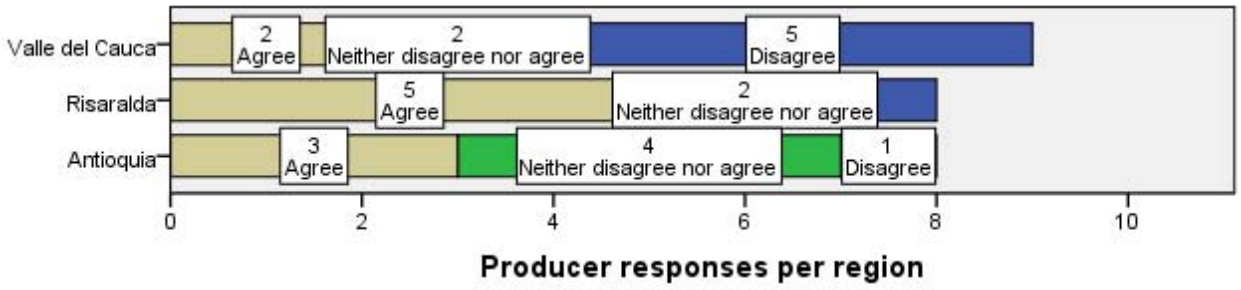

Figure 26: Producer responses, across the cases, to the statement: „The consumer receives enough training about topics that have to do with the PGS / Aval de Confianza." p_{fisher} = 0.184, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Most respondents indicated strong agreement according the statement about the facilitation of farm visits by the PGS / *Aval de Confianza* to other agroecological farms in terms of training (Mdn=5, IQR=1). A Kruskal-Wallis test showed that the agreement with the statement differed across the regions (Chi-Square(2) = 8.951, p = 0.009**). A post-hoc test (Dunn-Bonferroni-Test) showed that producers from Antioquia agreed less than producers from Risaralda that the PGS facilitated farm visits in terms of training (z = -2.975, p = 0.003**) (Figure 27).

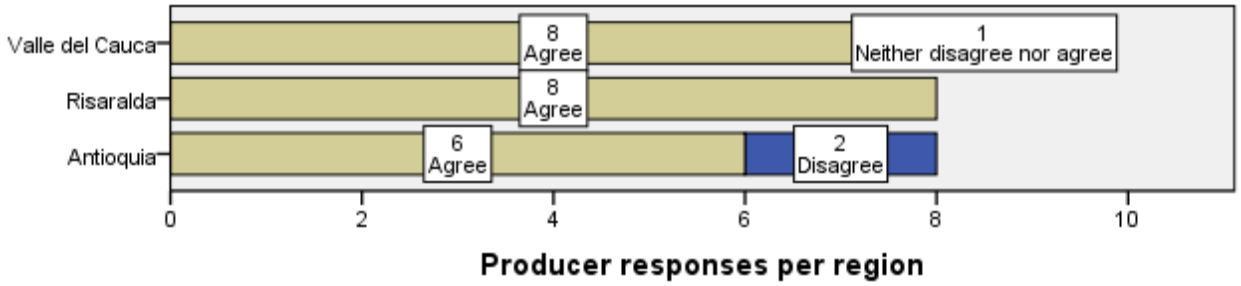

Figure 27: Producer responses, across the cases, to the statement: „The PGS / Aval de Confianza facilitates farm visits to other agroecological farms for training." p_{fisher} = 0.021*, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Item No 9 and Item No 10 were both about producers' perception regarding training. The difference in the formulation is that the first was focused on the producer and his perception about that HE/SHE received enough training. While the latter was focused in the promoter of the PGS / *Aval de Confianza* and the perception about that THEY provided enough training.

Most respondents indicated agreement to the statement, that the producer received sufficient technical expertise about agroecological / organic practices by the promotors of the PGS / *Aval de Confianza* (Mdn=4, IQR=1). The agreement, with the statement, did not differ significantly across the regions (p_{fisher} = 0.373).

Most respondents indicated agreement to the statement, that the promoter of the PGS provided enough training (Mdn=4, IQR=2). The agreement, with the statement, did not differ significantly across the regions (p_{fisher} = 0.416) (Figure 28).

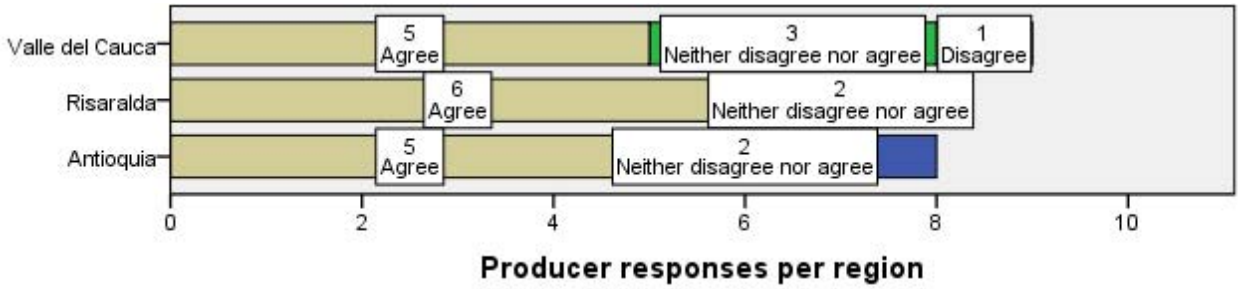

Figure 28: Producer responses, across the cases, to the statement: „The promoter of the PGS / Aval de Confianza provides enough training about the agroecological production." p_{fisher} = 0.416, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Most respondents indicated strong agreement to the statement that it was important that they would get more training (Mdn=5, IQR=1). The agreement, with the statement, did not differ significantly across the regions (p_{fisher} = 0.747) (Figure 29).

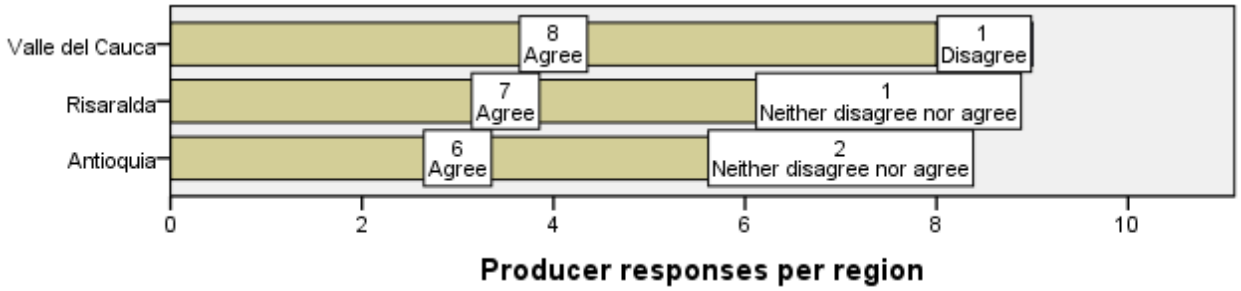

Figure 29: Producer responses across the cases, to the statement: „It is important that we would get more training." p_{fisher} = 0.747, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

I added Likert Items No 7 – 10 to form a Likert Scale regarding the topic of training. All of these items evaluate training aspects of the PGS. I eliminated Item No 11 from this scale, to prevent a violation of the rule of unidimensionality when forming a Likert Scale. Item No 11 didn't evaluate the status quo but the producers' opinion about the importance of more training in the future. Cronbach's alpha for the reliability of the Training Scale is 0.631 (Table 9).

The evaluation of the training scale is high across the three cases ($\bar{x}$=3.9, SD=0.79). A 1-Way ANOVA showed that there was no significant difference in the evaluation of the training scale across the three cases [$F(2, 22) = 3.03$, $p = 0.069$). Although Risaralda tended to evaluate the scale higher as producers from Valle del Cauca (Figure 30).

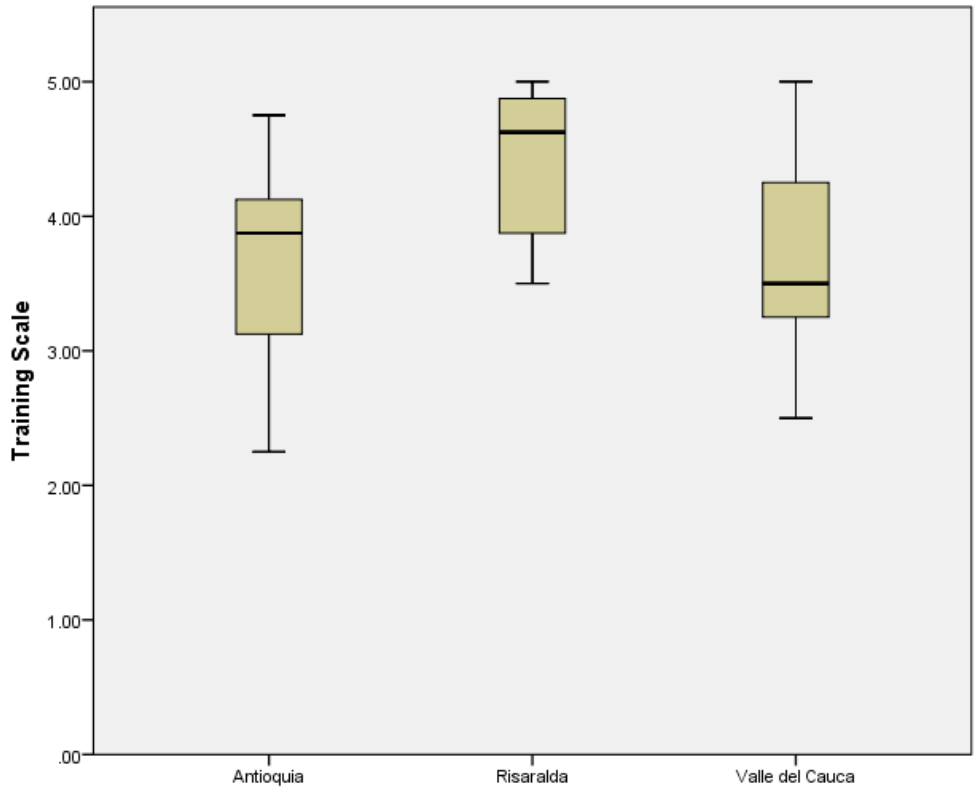

Figure 30: Training Scale across the cases, based on Items No 7 – 10. Estimate of reliability of the Likert scale; Cronbach's alpha = 0.631. p_{anova} = 0.069, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Producer satisfaction with the implementation of the PGS

Opinion seemed to be divided concerning the reported producer satisfaction with the implementation of the PGS (Mdn=5, IQR=3). Although, the differences across the regions were not significant (p_{fisher} = 0.111) (Figure 31).

A producer noted positive aspects of the PGS such "as a method to create trust for the consumers, by the stamp" and as an alternative to TPC because it was not as expensive (PROB05). Another stated that the PGS was a "great strategy to facilitate rural development, taking care of the environment and producing healthy (products)" (PROA02). Despite the overall high satisfaction, some producers were not content. Producers emphasized that they "needed help for commercialization" (PROA08) and that "consumers bought the products because they were very cheap and they still bargained for lower prizes" (PROC02). One producer highlighted the ignorance of consumers that they for example "didn't buy cherry tomatoes because they didn't know them" (PROC04). Another producer stated that the "PGS started out well but later it became very disorganized". He expressed the feeling that "the coordinators abandoned the marked" and that "since six months the PGS was quiet". On the other hand, he emphasized that "the greatest treasure (of the PGS) was that people connected with each other" (PROB07).

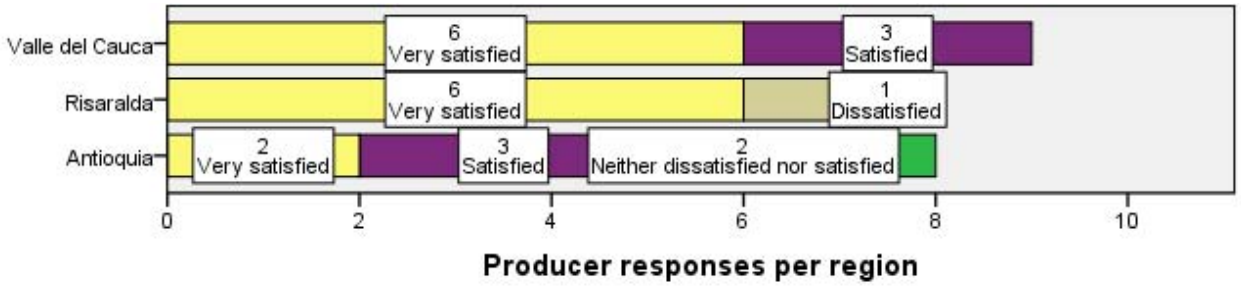

Figure 31: Producer responses, across the cases, to the statement: „How satisfied are you with the implementation of the PGS / Aval de Confianza?" p_{fisher} = 0.111, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

An exploration of the producer's satisfaction

Several Likert items correlated to the reported producers' satisfaction with the implementation of the PGS. The more the producers agreed to these statements the higher their satisfaction with the PGS. Except for the last two statements, the less the producers agreed to these, the higher their satisfaction with the PGS. (Table 14).

Table 14: Relations between survey items and producer's satisfaction (Item No 13) using Spearman correlation. * = significance level of 5%, ** = significance level of 1%. Thematically this items can be ordered into one factor about the validity of the PGS (Item No 14), social factors (Item No 15 – 17) and socioeconomic factors (Item No 18 – 20). n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Item No	Survey Item	r_s, $p_{spearman}$
14	The PGS certified products offer a trustable alternative to conventional products for the consumer.	r = 0.630, p = 0.001**
15	The PGS / Aval de Confianza connects me with the consumer.	r = 0.538, p = 0.006**
16	The PGS / Aval de Confianza helps to create social networks.	r = 0.422, p = 0.036*
17	The PGS / Aval de Confianza makes my work visible to society.	r = 0.555, p = 0.004**
18	The PGS / Aval de Confianza contributes, that I can live from my production.	r = 0.441, p = 0.027*
19	The PGS / Aval de Confianza doesn't contribute that I can stay in the countryside.	r = -0.670, p = 0.001**
20	The PGS / Aval de Confianza doesn't help me to sell my products.	r = -0.664, p = 0.000**

Producers that agreed more to the statement, that PGS certified products offered a trustable alternative to conventional products for the consumer, were more satisfied with the implementation of the PGS. There was a moderate positive relationship between the two variables (r = 0.630, $p_{spearman}$ = 0.001**).

Producers that agreed more to the statement that the PGS / *Aval de Confianza* connected them with the consumer were more satisfied with the implementation of the PGS. There was a moderate positive relationship between the two variables (r = 0.538, $p_{spearman}$ = 0.006**).

Producers that agreed more to the statement that the PGS / *Aval de Confianza* helped to create social networks were more satisfied with the implementation of the PGS. There was a weak positive relationship between the two variables (r = 0.422, $p_{spearman}$ = 0.036*).

Producers that agreed more to the statement that the PGS / *Aval de Confianza* made their work visible to society were more satisfied with the implementation of the PGS. There was a moderate positive relationship between the two variables (r = 0.555, $p_{spearman}$ = 0.004**).

Producers that agreed more to the statement that they could live from their production were more satisfied with the implementation of the PGS. There was a weak positive relationship between the two variables (r = 0.441, $p_{spearman}$ = 0.027*).

Producers that agreed less to the statement that the PGS / Aval de Confianza didn't contribute that they could stay in the countryside, were more satisfied with the implementation of the PGS. There was a moderate negative relationship between the two variables (r = -0.670, $p_{spearman}$ = 0.001**).

Producers that agreed less to the statement that the PGS / Aval de Confianza didn't help them to sell their products, were more satisfied with the implementation of the PGS. There was a moderate negative relationship between the two variables (r = -0.664, $p_{spearman}$ = 0.000**).

Satisfaction scale across the cases

I added Likert Items No 13 – 23 to form a Likert Scale regarding the satisfaction of the producers with the PGS. Cronbach's alpha for the reliability of the Satisfaction Scale is 0.841 (Table 9).

Producers were satisfied with the PGS across the three cases ($\bar{x}$=4.5, SD=0.47). A 1-Way ANOVA showed that there was no significant difference in the satisfaction across the three cases [F(2, 22) = 2.12, p = 0.144] (Figure 32).

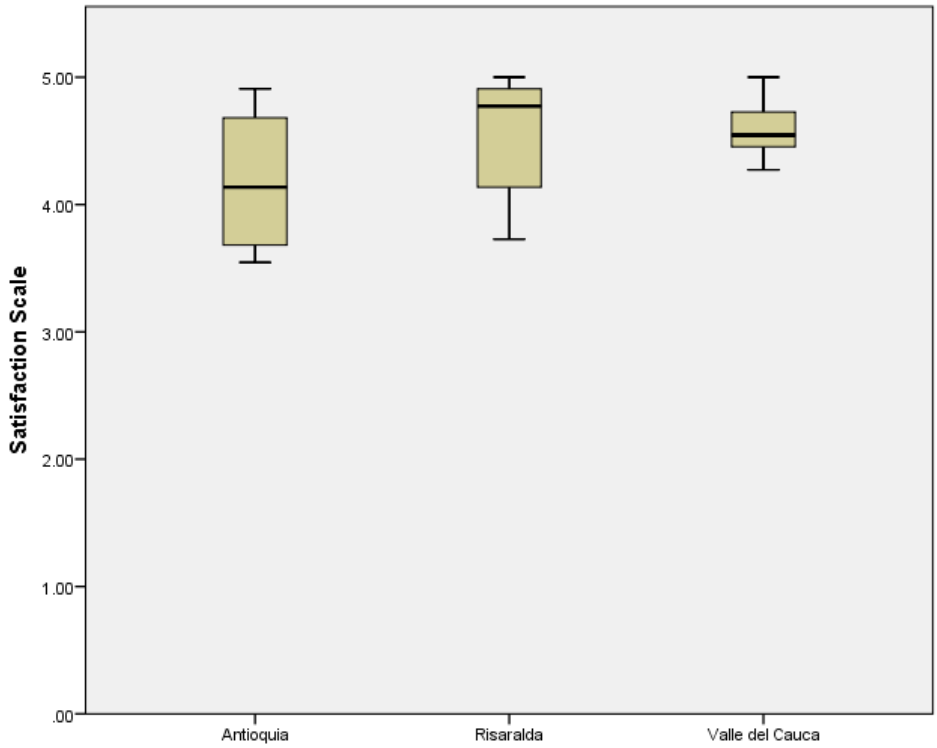

Figure 32: Producer satisfaction with the PGS across the three cases, based on Items No 13 – 23. Estimate of reliability of the Likert scale; Cronbach's alpha = 0.841. p_{anova} = 0.144, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Relationship between the satisfaction scale and sociodemographic data

The older the producer the more satisfied he or she was. There was a weak positive relationship between the producers' satisfaction and the reported age (r = 0.398, $p_{pearson}$ = 0.049*) (Figure 33).

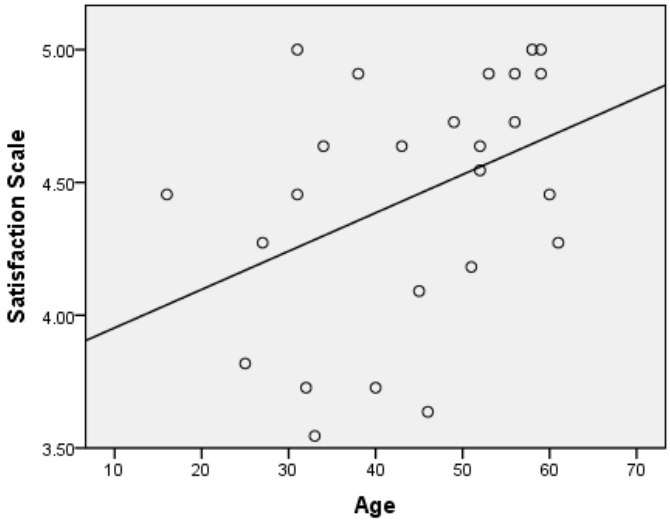

Figure 33: Producers' satisfaction correlating with the reported age. r = 0.398, $p_{pearson}$ = 0.049*, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

The more people that worked in the farm, the more the producer was satisfied. There was a moderate positive relationship between the producers' satisfaction and the number of people that worked in the farm (r = 0.691, $p_{pearson}$ = 0.000**) (Figure 34).

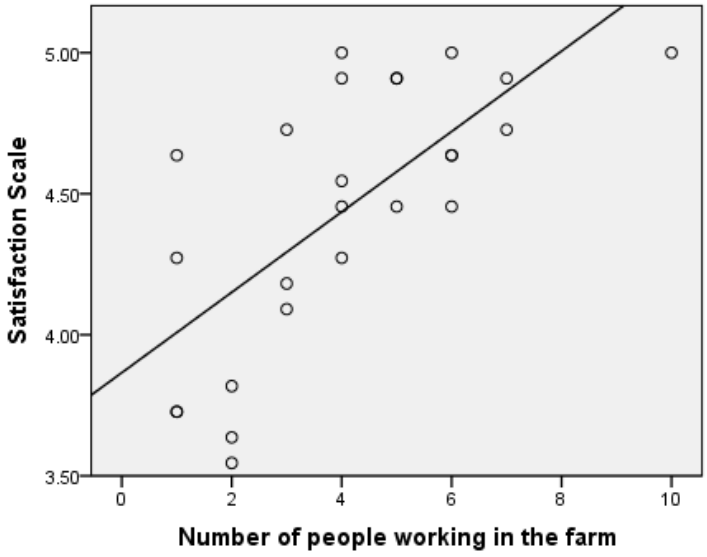

Figure 34: Producers' satisfaction correlating with number of people working in the farm. r = 0.691, $p_{pearson}$ = 0.000**, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Full time farmers were more satisfied with the PGS than part time farmers. There was a moderate positive relationship between farmers being full time farmers (instead of part time farmers) and the satisfaction with the PGS (r = 0.569, $p_{pearson}$ = 0.003**).

Producers that scored a higher value in the training scale tended to be more satisfied with the PGS than those with a lower value. It was a weak positive relationship (r = 0.382, $p_{pearson}$ = 0.060).

Weaknesses in the PGS across the cases

I added Likert Items No 25 – 28 to form a Likert Scale regarding the weaknesses of the PGS. Cronbach's alpha for the reliability of the Weaknesses Scale is 0.662 (Table 9).

The higher the arithmetic mean in the Challenges scale, the higher is the (evaluated) presence of challenges. Producers evaluated the Challenges (Items No 25 – 28) medium ($\bar{x}$=3.1, SD=0.84). A 1-Way ANOVA showed that there was no significant difference in the evaluation of the challenges across the three cases [F(2, 22) = 1.14, p = 0.289] (Figure 35). The reason why the Challenges scale came out average is because producers perceived difficulties with documentation (Item No 28) and the absence of labelling (Item No 27) as a challenge, but were unsure (Item No 26) or didn't perceive it as a challenge (Item No 25) regarding economic statements.

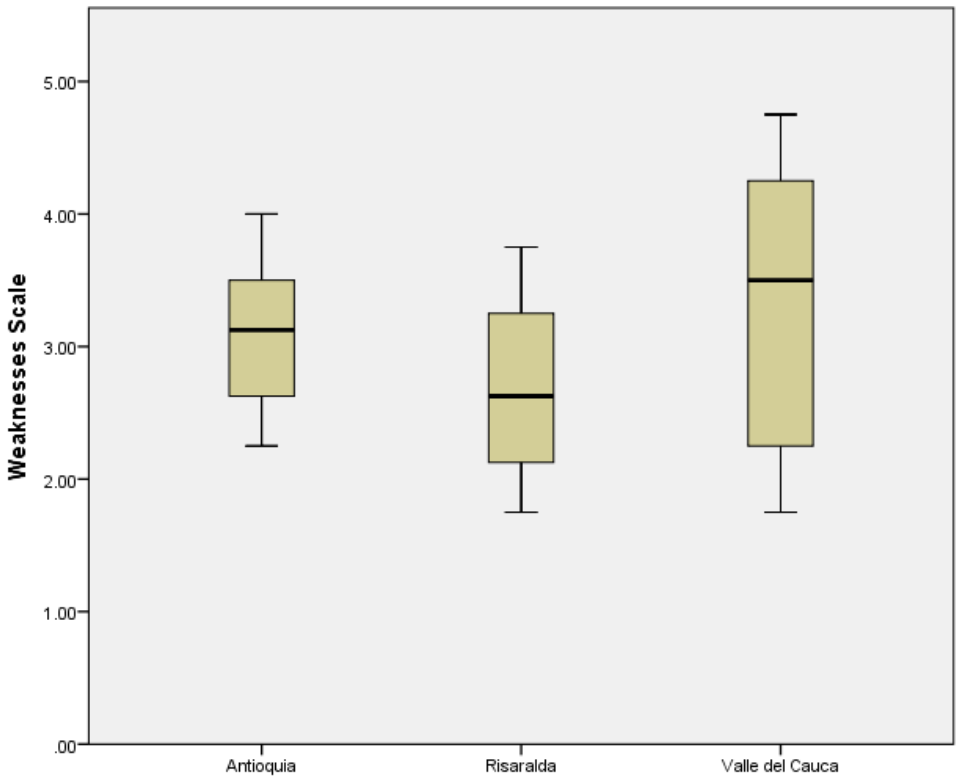

Figure 35: Weaknesses of the PGS across the three cases, based on Items No 25 – 28. Estimate of reliability of the Likert scale; Cronbach's alpha = 0.662. p_{anova} = 0.289, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Most respondents indicated disagreement to the statement that it was very easy for them to keep the paperwork up to date to comply with the rules of the PGS / *Aval de Confianza* (Mdn=4, IQR=1). The level of agreement with the statement did not differ significantly across the regions (p_{fisher} = 0.559). Not a single producer had the opinion that it was very easy for him/her to keep the paperwork up to date. The responses to this challenge were similarly distributed across the regions (p_{fisher} = 1.000) (Figure 36). During farm visits in the Antioquia PGS I observed that at least two producers struggled keeping their documentation up to

date. During the questionnaire producers reported, that this would be the biggest problem they encounter in the PGS (PROC03) and that there are producers that can't read or write (PROC02). One farmer from Risaralda reported that documenting was not obligatory, it was just a recommendation (PROB08). Two farmers from Valle del Cauca reported that they not just yet record their data (PROC07 and PROC08).

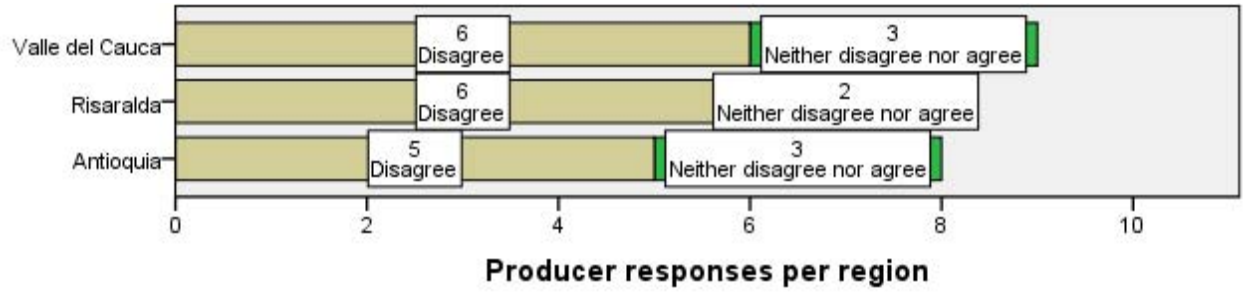

Figure 36: Producer responses across the cases, to the statement: „It is very easy for me to keep the paperwork up to date to comply with the rules of the PGS / Aval de Confianza." p_{fisher} = 1.000, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Producers rather disagreed to the statement, that there was no financial acknowledgement of the agroecological product certified by the PGS / *Aval de Confianza*. Eighteen producers disagreed or strongly disagreed, three were unsure and four agreed or strongly agreed (Mdn=2, IQR=2). The agreement with the statement did not differ significantly across the regions (p_{fisher} = 0.078) (Figure 37). During the questionnaires, producers from Risaralda reported that they "didn't want to increase the price because the products are *para el pueblo* (for the people)" (PROB01), another stated that they "had a fair price for everybody" (PROB03). Producers from Valle del Cauca underlined that there was "no price premium" for their products (PROC08), that they sold for the "usual price" in the market and that there were "consumers that didn't want to pay the official price because they were aware of that they were eliminating the intermediary" (PRDC02).

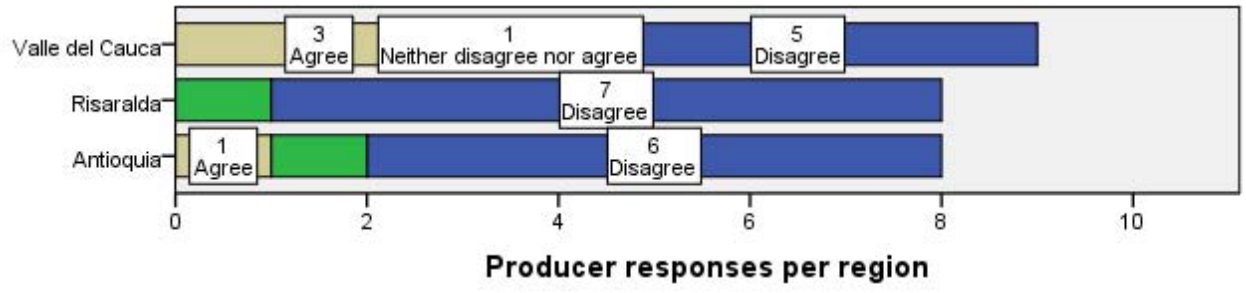

Figure 37: Producer responses across the cases, to the statement: „There is no financial acknowledgement of my agroecological product certified by the PGS / Aval de Confianza." p_{fisher} = 0.078, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Opinion seemed to be divided according the statement that consumers didn't want to appreciate the agroecological products economically (Mdn=3, IQR=2). Eleven producers disagreed or strongly disagreed, nine were unsure and five agreed or strongly agreed to the statement. The agreement with the statement did not differ significantly across the regions

(p_{fisher} = 0.318) (Figure 38). Producers from Valle del Cauca stated that consumers were "lacking information, consciousness and above all money" (PROC05), another said that "there was no price premium" and as they had all the same prize there was "no rivalry" between producers (PROC08).

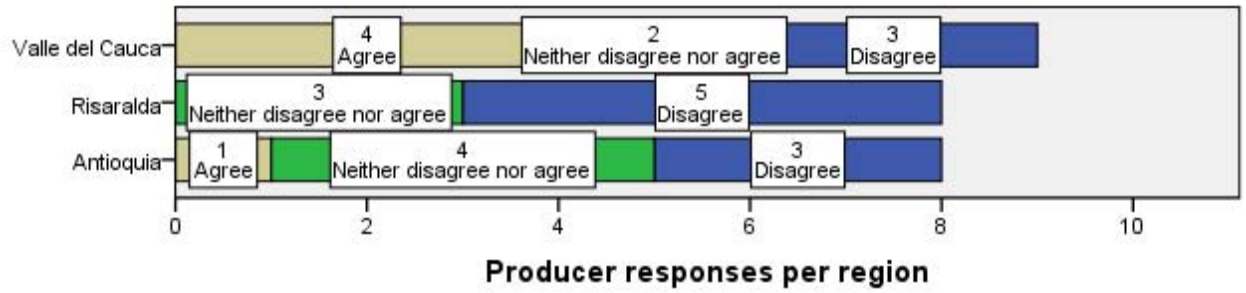

Figure 38: Producer responses across the cases, to the statement: "Consumers don't want to appreciate the agroecological products economically." p_{fisher} = 0.318, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Producers rather agreed to the statement that in the places of sale, their agroecological products were not marked as PGS certified (Mdn=4, IQR=2). Sixteen producers agreed or strongly agreed, five disagreed or strongly disagreed and four were unsure about the statement. The agreement with the statement did not differ significantly across the regions (p_{fisher} = 0.139) (Figure 39). A producer from Risaralda stated that he "was approved (certified), but the handover of the certificate didn't happen yet" and therefore his products were not yet marked as PGS certified (PROB05). Producers from Valle stated that the "stamp was not yet implemented" (in the market of Tuluá) (PROC03), others argued that the consumers knew and believed in the word of the producer (PROC05) and that the PGS was something "ethical, based in the word" of the producer (PROC04).

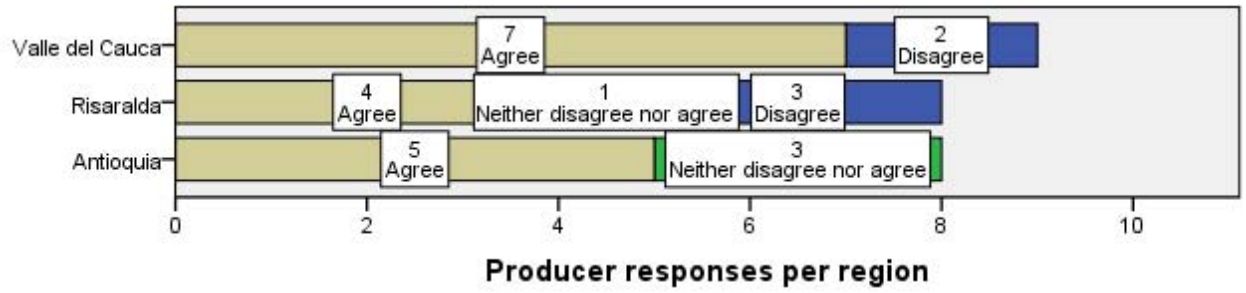

Figure 39: Producer responses across the cases, to the statement: "In the places of sale, my agroecological products are not marked as PGS certified." p_{fisher} = 0.139, n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 9/8/8).

Table 15: Overview of responses to the producer surveys. A, B and C indicate the area, where the surveys have been conducted: A = Antioquia, B = Risaralda, C = Valle del Cauca. n = 25 (n per case Antioquia/Risaralda/Valle del Cauca: 8/8/9) $\bar{x}$ = arithmetic mean of the Likert scale, SD = standard deviation, $\tilde{x}$ = median of the Likert item ranks, IQR = interquartile range; % of f = percentage of response frequency per item. p = p value, statistically significant at a level of 0.05 marked with *. Statistical tests used: Fisher's exact test (Item No 2-28), Pearson correlation when variables are normally distributed (Item No. 29 – 32, 34, 36, 39 – 41), Spearman correlation when variables are not normally distributed (Item No. 33, 35, 37, 38). Items No 7-11, 14-23 and 25-28 are Likert items. Respondents could answer according the following scale: 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree. Item No's 19, 20 and 28 are contrary formulated items and were therefore reverse coded: 1 = Totally agree, 2 = agree, 3 = Neither agree nor disagree, 4 = Disagree, 5 = Totally disagree. The possible answers to item number 13 were a 5-digit Smiley scale translated into: 1 = Strongly dissatisfied, 2 = Dissatisfied, 3 = Neither satisfied nor dissatisfied, 4 = Satisfied, 5 = Strongly satisfied.

			TOTAL	**A**	**B**	**C**
Item No	Survey item		**$\tilde{x}$**, *IQR* % of f p value	**$\tilde{x}$**, *IQR* % of f p value	**$\tilde{x}$**, *IQR* % of f p value	**$\tilde{x}$**, *IQR* % of f p value
1	Farm visits					
2	I visited farms of colleagues to get to know the production of other producers.	Yes No	92.0% 8.0% 0.187	75.0% 25.0%	100.0%	100.0%
3	If the answer to the last question was yes: How often?					
	1-2 times		17.4%	16.7%	25.0%	11.1%
	3-5 times		26.1%	50.0%	25.0%	11.1%
	More than 5 times or when the respondent reported "muchas veces" (a lot of times)		56.5% 0.437	33.3%	50.0%	77.8%
4	I visited farms to certify the production of other producers.	Yes No	48.0% 52.0% 0.286	25.0% 75.0%	50.0% 50.0%	66.7% 33.3%
5	If the answer to the last question was yes: How often?					
	1-2 times		16.7%	0.0%	25.0%	16.7%
	3-5 times		41.7%	100%	0.0%	50.0%
	More than 5 times or when the respondent reported "muchas veces" (a lot of times)		41.7% 0.214	0.0%	75.0%	33.3%
6	**Training Scale Item 7 - 10**	$\bar{x}$ SD	3.88 0.79	**3.7** *0.81*	**4.4** *0.58*	**3.6** *0.78*
7	The consumer receives enough training about topics that have to do with the PGS / Aval de		**3**, *2* 0.184	**3**, *1*	**4**, *2*	**2**, *2*

	Confianza.					
8	The PGS / Aval de Confianza facilitates farm visits to other agroecological farms for training.		**5**, *1* 0.021*	**4**, *2*	**5**, *0*	**5**, *1*
9	I receive sufficient technical expertise about agroecological / organic practice by the promotors of the PGS / Aval de Confianza.		**4**, *1* 0.373	**4**, *1*	**4**, *1*	**4**, *4*
10	The promoter of the PGS / Aval de Confianza provides enough training about the agroecological production.		**4**, *2* 0.416	**4**, *2*	**5**, *2*	**5**, *2*
11	It is important that we would get more training.		**5**, *1* 0.747	**5**, *2*	**5**, *2*	**5**, *1*
12	**Satisfaction with the PGS Scale Item 13 - 23**	$\bar{x}$ SD	**4.5** *0.47*	**4.2** *0.53*	**4.5** *0.51*	**4.6** *0.27*
13	How satisfied are you with the implementation of the PGS / Aval de Confianza?		**5**, *3* 0.111	**4**, *2*	**5**, *2*	**5**, *1*
14	The PGS certified products offer a trustable alternative to conventional products for the consumer.		**5**, *1* 0.628	**5**, *1*	**5**, *0*	**5**, *1*
15	The PGS / Aval de Confianza connects me with the consumer.		**5**, *1* 0.011*	**4**, *2*	**5**, *1*	**5***, 0*
16	The PGS / Aval de Confianza helps to create social networks.		**5**, *1* 0.013*	**4**, *1*	**5**, *0*	**5**, *0*
17	The PGS / Aval de Confianza makes my work visible to society.		**5**, *1* 0.354	**4.5**, *2*	**5**, *1*	**5**, *1*
18	The PGS / Aval de Confianza contributes, that I can live from my production.		**5**, *2* 0.500	**4.5**, *2*	5, *1*	**4**, *2*
19	The PGS / Aval de Confianza doesn't contribute that I can stay in the countryside.		**5**, *4* 0.165	**5**, *1*	5, *1*	**5**, *0*
20	The PGS / Aval de Confianza doesn't help me to sell my products.		**5**, *2* 0.009**	**3**, *1*	**5**, *2*	**5**, *0*
21	I get a surplus for my agroecological products certified by the PGS / Aval de Confianza.		**4**, *3* 0.025*	**4**, *2*	**4**, *3*	**3**, *3*
22	PGS / Aval de Confianza certified products are healthier than conventional products.		**5**, *0* 0.520	**5**, *0*	**5**, *0*	**5**, *0*
23	We (the producers) contribute to the environmental protection by the application of agroecological practices promoted by the PGS / Aval de Confianza.		**5,** *0* 0.092	**5**, *0*	**5**, *1*	**5**, *0*
24	**Challenges Scale Item 25 - 28**	$\bar{x}$ SD	3.1 0.84	3.1 0.58	2.7 0.70	3.3 1.07
25	There is no financial acknowledgement of my agroecological product certified by the PGS / Aval de Confianza.		**2**, 2 0.078	**2**, 1	**1**, 1	**2**, *4*
26	Consumers don't want to appreciate the		**3**, 2	**3**, *1*	**1.5**, *2*	**3**, *4*

	agroecological products economically.	0.318			
27	In the places of sale, my agroecological products are not marked as PGS certified.	**4**, 2 0.139	**4**, *2*	**4**, *4*	**5**, *3*
28	It is very easy for me to keep the paperwork up to date to comply with the rules of the PGS / Aval de Confianza.	**4**, *1* 0.559	**4**, *1*	**4**, *2*	**4**, *2*
29	Satisfaction Scale x Age	0.049*			
30	Satisfaction Scale x Sex	0.998			
31	Satisfaction Scale x Education	0.063			
32	Satisfaction Scale x Civil status	0.717			
33	Satisfaction Scale x No of people that live in the farm	0.314			
34	Satisfaction Scale x No of people that work in the farm	0.000**			
35	Satisfaction Scale x Farm size	0.186			
36	Satisfaction Scale x Part time farmer	0.003**			
37	Satisfaction Scale x Years working with OA	0.075			
38	Satisfaction Scale x Years being in a PGS	0.110			
39	Satisfaction Scale x Self-definition	0.106			
40	Satisfaction Scale x Training Scale	0.060*			
41	Satisfaction Scale x Challenges Scale	0.967			

6. Discussion

6.1. What are the actors that intervene in three different PGSs in Colombia? (RQ1)

I found out that actors such as producers, consumers, organizations, a coordinator, a foundation document, and committees formed the basic structure that was present in the Participatory Guarantee Systems of Antioquia, Risaralda and Valle del Cauca. The interaction of actors such as regional governmental institutions, universities, international movements, international, national and regional PGS experiences was optional and not present (or no longer present) in all of the three PGSs.

The three PGSs differed greatly in the quantity and nature of the actors such as the number of certified producers and organizations or the kind of coordinator. The coordinators were in the case of Antioquia an NGO (RECAB), in the case of Risaralda a university and a regional governmental institution that joined forces (UTP, CARDER) and in the case of Valle del Cauca a grass roots NGO (*la RED de mercados*). Actors, such as an NGO or private organizations, that start a PGS are important because they often support the other stakeholders with "information, training and financial resources … to run the system" (Bouagnimbeck, 2014). Nevertheless, those who start the PGS are often not the actors that run the established PGS (May, 2008). This is in accordance with my findings. Actors like consumers, producers and organizations are permanent actors and actors such as universities or regional governmental institutions are actors over time, mostly while implementing projects. During that time those actors contribute substantially to the functioning of the PGS with funds and expertise. In the case that those actors no longer participate "it is important to ensure that the (remaining) stakeholders take full responsibility and have the decision power to achieve the sustainability of a PGS beyond external donor support and influence" (Bouagnimbeck, 2014). May (2008) suggested to "bring new people" with management skills to the PGS and "to pay key people".

In the case of Antioquia, RECAB implemented a PGS which resembled an ICS. This was an unexpected finding for me, as I always had the impression that the coordinators tended to distance themselves from TPC. A similar phenomenon happened in East Africa: "They looked like hybrids of PGS and ICS" (Katto-Andrighetto, 2013). The internal regulation of Antioquia considered the organic norm of Colombia. This finding is in accordance with Fonseca & Lernoud (2004) as they mentioned that most alternative certification schemes used "standards based in the IFOAM Basic Standards, Codex and/or national regulations", but contrasts findings from Risaralda and Valle del Cauca as they did not consider the organic norm of Colombia in their rules.

Commercialization of PGS certified products happened in all cases in markets. Katto-Andrighetto (2013) highlighted, that a "PGS needs a strong market linkage for its survival" and highlighted the development of own brands to boost marketing activities in the context of PGS in East Africa. Producers of the Risaralda PGS sold their products next to the markets, in a shop and in a consumer – producer network of the university (UTP). This finding adds up to Källander (2008) who stated, that PGSs are often "linked to alternative marketing approaches (home deliveries, community supported agriculture groups, farmers markets, popular fairs)".

Findings to this research question imply a diversity of actors that interacted with and / or influenced the respective PGS. I think that especially the coordinator has a strong influence in how the respective PGS is implemented and maintained as well as in the resilience of that PGS. Further research in other geographical contexts is needed to get a better understanding on if and how different kinds of coordinators influence the implementation and maintenance of a PGS.

6.2. How do the three PGSs work? (RQ2)

The theoretical framework of the PGSs consisted in all three cases of the following procedures: Inscription, Training, Farm visit, Evaluation and Certification. Clear defined sanctions were only present in the PGS of Antioquia.

IFOAM describes PGS as a credible certification system because of its "clearly documented system of quality assurance … that results in a written certificate" (IFOAM, n.d. c). All three PGS had a clearly documented system of quality assurance developed, but the full implementation was not evident in all cases. Cáceres (2005) predicted, that "the ability … to develop and implement monitoring schemes capable of guaranteeing the quality of the products" could be one of the main challenges.

Ostrom (1990) found out that successful (long-enduring) institutions for collective action implemented "monitoring and sanctioning activities". RECAB's internal regulation clearly defined sanctions. In Valle del Cauca there existed only one sanction for provable intentionally fraudulent behaviour: permanent ban from the organization and from the market. In Risaralda there were no sanctions defined. Padel (2011) argues, "one important reason (for non-compliances) is likely to be lack of knowledge". Producers of Risaralda who didn't comply with the rules received increased training by the *grupo de formación*. This training group was aimed especially at those who stopped complying with the rules and those who were "in transition". Control bodies conducting TPC, are not allowed to offer extension services "to avoid conflict of interest" (Padel, 2011). Training was an important procedure of all three PGS and addresses therefore the "schizophrenic" situation met by CBs, mentioned by a certifying executive in Mutersbaugh (2005).

Schmid (2010) stated that third party "certification examines … whether boundaries have been overstepped" and further outlines that "in future it could rather determine where this farm is along a path and what can be optimised". The future described by Schmid (2010) was taking place in RECAB: The NGO developed and used a tool for self-assessment of the producers and used it with their ICS/PGS.

Further research might want to point out if self-assessment of producers, as used in the PGS of Antioquia is present and / or applicable as well in other PGS and its possible contributions to the wider debate of assessment systems in organic agriculture.

6.3. What is the role of the consumer? (RQ3)

More than half of the interviewed consumers come one time per week to buy agroecological or organic products in the places of commercialization. Eighty percent buy their products for family consumption and eighty percent have a farming background (Table 10 &

Table 13). Cáceres (2005) stated, that many consumers had relatives or friends that were farmers. The closeness of consumers to the producers developed strong links and contributed to the success of the markets.

Findings to this research question indicate that the reason why consumers buy agroecological products in the markets is mostly due to “health”, partly “to support the peasantry” and out of “environmental reasons” (Table 13). The focus on the promotion of these reasons mentioned by the consumers can be used to adjust marketing practices by the producers (Howard and Allen, 2010; Pearson and Henryks, 2008; Zander et al., 2015).

Consumer awareness about PGS was low across the regions: Eighty percent never heard about the term PGS or the locally used name. Of those who heard about PGS only two consumers visited farms in terms of certification. These findings resemble the insights of Hofstadler (2013) and Sacchi et al. (2015), who found out about low participation in the certification process and low consumer awareness in the context of PGS in Brazil. Seven out of eight best PGS cases showed to struggle with consumer integration. Only in Huánuco – Peru, consumers regularly participated in farm visits (Bouagnimbeck, 2014). D’Amico & Castro (2016) located the reasons for low consumer awareness “in the limitation of market opportunities for producers” rooted in “difficulties faced in diversifying production and keeping it constant over the year.” Nevertheless, 48.3% of the consumers engaged in farm visits, to get to know the farm of the producers, which a key informant considered as a certification by trust (KI4). Despite the low awareness, the engagement in farm visits might be considered as “active participation”, part of IFOAM’s PGS definition (IFOAM, n.d. a). Bouagnimbeck (2014) highlighted the role active consumers can take as promoters, to boost demand and financial income for producers.

Darnall et al. (2016) suggested that consumers in the presence of trust “tend to passively grant legitimacy to the (label) without seeking further reassurance”. Could this be an explanation why consumers in the presence of trust don’t seek further assurance, for example through farm visits? My results suggest that farm visits tend to have a relation to the reported consumer trust. Consumers trusted in the organic quality of the products across the regions. Female consumers less likely reported low to medium trust in the organic quality of the products than male consumers.

An interesting finding was that consumers from Valle del Cauca cared more about traceability than consumers from both other regions and around 42 percent were unsure if they can believe the producers word. Nevertheless, these findings have to be evaluated with caution as many consumers expressed uncertainty about the term traceability. Across the three regions I explained several times what was meant by that term.

Further research might want to investigate the relation between farm visits and their possible influence in the consumers’ trust in the quality of the organic / agroecological products.

6.4. What is the role of the producer? (RQ4)

Producers are satisfied with the implementation of the PGS. I found out that the satisfaction with the implementation of the PGS is related to socioeconomic and social reasons. To the best of my knowledge this study is the first that tried to measure the satisfaction of producers in a PGS. My findings are in accordance with Nigh & González Cabañas (2015), who described in the context of PGS in Mexico: “Economically, farmers get better prices for their

products but more importantly perhaps is the (social) recognition of their work". My results also coincide with Cáceres (2005) who stated, that the closer relationship between consumers and producers "boosted peasants' self-esteem", especially that the consumers "socially acknowledge their work".

Producers that scored a higher value in the training scale tended to be more satisfied with the PGS. This finding underlines the importance of training in the successful implementation of a PGS. Bouagnimbeck (2014) highlighted the "required culture of learning" which could be achieved through "a permanent process of learning through training in organic farming". The great majority of producers engaged in farm visits to learn about the production of other producers, around half of the producers engaged in farm visits for certification (Table 15). Hofstadler (2013) found out, that the "most important place for learning new things about organic agriculture" were the farms of other producers.

Keeping paperwork up to date was a challenge reported in all three cases. Obstacles with record keeping showed to be a relevant challenge in four out of eight PGSs in Bouagnimbeck's (2014) best-case study. May (2008) recommended, to "reduce paperwork to a minimum" and suggested pictorial solutions or hands on activities to tackle situations of illiterate producers.

7. Conclusion and perspectives

In my master thesis I described three PGSs in the context of Colombia, located in the provinces of Antioquia, Risaralda and Valle del Cauca. I applied a mixed-methods approach combining both qualitative and quantitative methods. According to consumers and producers, PGS in Colombia is a success story. Consumers trusted in the organic / agroecological quality of PGS certified products and producers were satisfied with the implementation of the PGS across the cases.

Aspects related to training showed to be a recurring pattern in the PGSs emerging both of the qualitative and the quantitative analysis. Coordinators provided training and expertise. In one PGS, if producers stopped complying with the rules, they received increased training instead of sanctions. Farm visits by the consumers, to get to know the production of the producers, tended to be related to the consumers' trust. Training aspects showed to be related with the producers' satisfaction with the implementation of the PGS. The concept of impartiality hinders CBs to give extension services. Training was an integral part of the three PGSs. Therefore, PGS, in the context of Colombia, overcomes that barrier faced by TPC.

Nevertheless, there were challenges. For example, in Valle del Cauca only the producers of the market in Cali had implemented the whole process of certification and documentation. Producers of Risaralda mentioned that they kept no documentation because "it was not obligatory". Keeping the paperwork up to date or having any kind of document in the first place was a major challenge – if not THE major challenge. Not a single producer had the opinion that it was very easy for him/her to keep the paperwork up to date. This problem must be addressed to foster PGS as a trustable alternative to TPC.

Limitations to the study design might be the usage of Likert type questions to evaluate consumer and producer perception on the PGS. Individual respondents commented that they perceived the questions confusing (CONA06), "very European like" and "too schematical" (PROC07).

The analysis of a small-sized sample, especially in the case of Valle del Cauca, did not allow for a detailed within case analysis. For instance, the location of the different markets in the province of Valle del Cauca might influence the producers' and consumers' perception.

For the formulation of a Colombian organic norm that includes PGSs it is essential to invite actors that are experienced with PGS in the Colombian context. These key actors could be: the coordinators, members of organizations (consumers and producers), university staff and members of regional governmental organisations that are or were close to PGS processes. It is important to include key actors in the discussion to create a norm that considers the reality of those that are affected and to avoid for example the problem of over-bureaucratisation (D'Amico and Castro, 2016).

Together with master student colleagues we discussed a potential development of PGS in a European and Austrian context with the aim to certify organic products and to promote organic agriculture. PGS might reduce certification costs especially for direct marketers (Padel, 2010) and reduce bureaucracy in certification for producers in Europe.

The importance and presence of training was evident in all three cases. Further research might want to investigate, if Participatory Guarantee Systems contribute to the dissemination of organic agriculture / agroecology as a practice through training.

I want to conclude with the statement of a key informant: “*El SPG no es un instrumento solo para el control sino tambien para la promoción de la agricultura organica* – The PGS is not only an instrument to check (for the organic quality) but also to promote organic agriculture” (KI1).

8. Abstract

The current gold standard for certification in organic agriculture is third party certification (TPC). Although there exist a number of critiques to TPC such as high costs for certification, high amount of bureaucracy and the separation of certification and extension services to safeguard impartiality. Participatory Guarantee Systems (PGS) have evolved since 2004 as an alternative to TPC to overcome the aforementioned critiques.

In this thesis three PGSs of Colombia in the departments of Antioquia, Risaralda and Valle del Cauca have been studied. The objectives were (i) to identify the actors and their administrative functions, (ii) to depict the functional processes of the PGSs, (iii) to describe the consumers (iv) and the producers' role in the PGS.

A mixed methods approach was applied combining qualitative and quantitative methods. Participant observation during farm visits, on markets, meetings and events was applied. The internal regulations and documents that described the functioning of the PGSs have been collected. Semi-structured interviews with experts and key informants have been conducted. Based on the interviews, consumer and producer surveys were developed and carried out. Qualitative analysis was conducted with CAQDAS software Atlas.ti, quantitative analysis was carried out with the statistical package SPSS. Common aspects of the producer survey were grouped into three scales during analysis: Training Scale, Satisfaction Scale and Challenges Scale.

(i) A coordinator, producers and consumers conformed the *basic actors* that were present in all three PGSs. *Optional actors* such as regional governments and Universities were not, or no longer present in all of the three cases. (ii) All three PGS had a clearly documented system of quality assurance developed, but the full implementation was not evident in all cases. The functional processes of the PGSs consisted in all three cases of the following elements: Inscription, Training, Farm visit, Evaluation and Certification. Clear defined sanctions were present only in the PGS of Antioquia. In the PGS of Risaralda producers who stopped complying with the norms received increased training. (iii) Consumers showed little awareness about the term PGS. However, nearly half of the consumers (48%) engaged in farm visits. PGS certified products enjoyed a high level of trust, by the consumers, across the three regions. Women were less likely to report low to medium trust than men. Farm visits tended to have a relation to the reported consumer trust. (iv) The producers' satisfaction with the implementation of the PGS was high across the three regions. Social aspects of the PGS such as the creation of social networks and socioeconomic aspects such as the help of the PGS to sell the produce, showed a significant positive relation to the producers' satisfaction. Producers that scored a higher value in the training scale tended to be more satisfied with the PGS. Nevertheless, keeping the paperwork up to date and the labelling of products were major challenges across the cases.

These findings show that the studied PGSs in Colombia are a success story according the consumers and the producers. Consumers trusted in the organic / agroecological quality of PGS certified products and producers were satisfied with the implementation of the PGS across the three cases. However, challenges with the complete implementation of the quality assurance system and especially challenges with the paperwork must be addressed to safeguard the credibility and effective operation of PGS. The importance and presence of training aspects was a recurring pattern in all three cases. Further research might want to

investigate if and how Participatory Guarantee Systems in other geographical contexts contribute to the dissemination of organic agriculture / agroecology as a practice through training.

9. Zusammenfassung

Die unabhängige Zertifizierung durch Dritte ist der derzeitige Maßstab im Biolandbau. Diese Art der Zertifizierung steht jedoch in der Kritik, unter anderem wegen der hohen Kosten für die Zertifizierung, den hohen bürokratischen Anforderungen und der notwendigen Trennung von Zertifizierungs- und Beratungstätigkeiten, um der Anforderung nach Unparteilichkeit gerecht zu werden. Aufgrund der zuvor genannten Kritikpunkte wurden deshalb Partizipative Garantiesysteme (PGS) als Alternative zur unabhängigen Zertifizierung durch Dritte seit 2004 entwickelt.

In dieser Masterarbeit wurden drei verschiedene PGS in Kolumbien in den Provinzen Antioquia, Risaralda und Valle del Cauca untersucht. Die Forschungsziele waren (i) die Akteure und ihre administrativen Funktionen darzustellen, (ii) die Funktionsweise der PGS anhand der gefundenen Elemente und Prozesse darzustellen, (iii) die Rolle der Konsumenten und (iv) die Rolle der Produzenten zu beschreiben.

Es wurde ein Methodenmix angewendet, indem qualitative und quantitative Methoden kombiniert wurden. Teilnehmende Beobachtung wurde während Besuchen landwirtschaftlicher Betriebe, auf Märkten und bei Versammlungen angewendet. Dokumente, die die Funktionsweise der PGS beschreiben, wurden gesammelt. Es wurden halbstrukturierte Interviews mit Experten und Schlüsselpersonen durchgeführt. Basierend auf den Interviews wurden Konsumenten- und Produzentenumfragen entwickelt und durchgeführt. Die qualitative Datenanalyse wurde mit dem CAQDAS Programm ATLAS.ti durchgeführt, die quantitative Datenanalyse wurde mit dem Statistiksoftwarepaket SPSS ausgewertet. Während der Analyse wurden gemeinsame Aspekte der Produzentenumfragen gruppiert und drei Skalen gebildet: Trainingsskala, Zufriedenheitsskala, und eine Herausforderungsskala.

(i) Die *Elementarakteure*, die in jedem PGS gefunden wurden, sind: Ein Koordinator, Produzenten und Konsumenten. Akteure wie regionale Regierungsbehörden und Universitäten waren *optionale Akteure* und waren nicht oder nicht mehr in jedem der drei PGS vorhanden. (ii) Jedes PGS hatte ein klar dokumentiertes Qualitätssicherunssystem entwickelt. Die komplette Implementierung derselben war jedoch nicht in jedem Fall offenkundig. Die gefundenen Elemente und Prozesse, die in jedem PGS vorhanden waren, sind: Eine Eintragung in das PGS, Training, der Besuch der landwirtschaftlichen Betriebe, eine Evaluierung der Betriebe und die Zertifizierung. Klar definierte Sanktionen im Falle der Nicht-Konformität gab es nur im PGS von Antioquia. Produzenten im PGS von Risaralda wurden im Falle von Nicht-Konformitäten vermehrt in Trainingsprozesse integriert. (iii) Die Konsumenten zeigten wenig Bewusstsein über den Begriff PGS. Jedoch besuchten fast die Hälfte (48%) der Konsumenten landwirtschaftliche Betriebe. Konsumenten hatten ein hohes Vertrauen in die PGS-zertifizierten Produkte in allen drei Regionen. Frauen gaben weniger oft als Männer an, ein geringes oder mittleres Vertrauen in die biologische Qualität der Produkte zu haben. Der Besuch der landwirtschaftlichen Betriebe durch die Konsumenten tendierte dazu, einen Einfluss auf das Vertrauen zu haben. (iv) Die Produzenten waren zufrieden mit der Umsetzung des PGS in den drei Regionen. Es gab einen signifikanten positiven Zusammenhang zwischen der Ausprägung von sozialen und sozioökonomischen Aspekten des PGS und der Zufriedenheit der Produzenten mit dem PGS. Produzenten, die einen höheren Wert in der Trainingsskala erzielten, tendierten dazu, zufriedener mit dem

PGS zu sein. Es war jedoch eine große Herausforderung, in allen drei Fällen, die Dokumentation aktuell zu halten und die Produkte zu kennzeichnen.

Die Ergebnisse dieser Masterarbeit zeigen, dass die erforschten PGS in Kolumbien ein voller Erfolg laut Konsumenten und Produzenten sind. Die Konsumenten vertrauten in die biologische / agrarökologische Qualität der PGS zertifizierten Produkte und die Produzenten waren zufrieden mit der Implementierung des PGS in allen drei Fällen. Jedoch sollten Herausforderungen wie die lückenlose Implementierung des Qualitätssicherungssystems und insbesondere in der Dokumentation aufgegriffen werden um die Glaubwürdigkeit und das wirksame Funktionieren der PGS zu sichern. Die Wichtigkeit und das Vorhandensein von Trainingsaspekten war ein wiederkehrendes Muster in allen drei Fällen. Weitere Forschungen sollen zeigen ob und wie Partizipative Garantiesysteme in anderen geografischen Zusammenhängen zur Verbreitung des Biolandbaus / der praktisch angewandten Agrarökologie durch Trainingsaspekte beitragen.

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10.2. List of figures

10.3. List of tables

11. Appendix

11.1. Consumer questionnaire (Spanish)

Lugar: **Fecha:**

1) Yo he escuchado de los Sistemas Participativos de Garantía / del Aval de confianza.

1 □ Sí 2 □ No

En caso de Sí sigue con la pregunta No 2. En el caso de No sigue por favor con la pregunta No. 14.

Por favor considere las próximas declaraciones en detalle. Después de cada declaración por favor diga cual respuesta refleja más su opinión. Si usted está totalmente en desacuerdo con la declaración, en desacuerdo, ni de acuerdo ni en desacuerdo, de acuerdo o totalmente de acuerdo.

Propósito del Aval de Confianza / Sistema Participativo de Garantía

		Totalmente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Totalmente de acuerdo
	Pregunta	1	2	3	4	5
2	Creo que este sistema del aval de confianza / el SPG no funciona en realidad.					
3	Yo participo activamente en el SPG / Aval de Confianza.					
4	Yo recibí capacitaciones sobre el valor nutricional de la producción agroecológica.					
5	Participar en el proceso de la evaluación / certificación del productor agroecológico para mí no es importante.					
6	El Sistema Participativo de Garantía / el Aval de confianza ayuda en la vinculación del consumidor con los campesinos del mismo SPG.					
7	El SPG / Aval de Confianza ayuda en visibilizar el trabajo del campesino (pequeño productor).					
8	Yo no entiendo para nada como funciona este sistema del aval de confianza / este SPG.					
9	Yo conozco a los productores avalados / certificados personalmente.					
10	Yo como consumidor tengo influencia en la toma de decisiones dentro del sistema del aval de confianza / SPG.					

11) Usted participa en el SPG / Aval de Confianza de la siguiente manera.

□ Inspector de finca con producción agroecológica.

□ Comité de Verificación / Equipo de Verificación

□ Otra:_____

□ No participo en el SPG / Aval de Confianza aparte de comprar productos.

12) ¿Usted visitó a fincas para avalar / certificar la producción agroecológica de los productores participantes del SPG / Aval de Confianza?

1 Sí □ 2 No □

13) ¿Cuantas veces usted visitó a fincas para avalar / certificar la producción agroecológica de los productores participantes del SPG / Aval de Confianza?

_____

		Totalmente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Totalmente de acuerdo
	Pregunta	1	2	3	4	5
14	La producción orgánica es sobre todo una mentira.					
15	Un sistema de garantía que se basa en la palabra es suficiente para nuestro caso.					
16	Es necesario tener un sistema que cuenta con mayor trazabilidad del producto agroecológico.					
17	La trazabilidad no me importa.					
18	Si el vendedor / productor dice que el producto es orgánico yo le creo 100% que es así.					
19	Estoy muy interesado en recibir capacitaciones sobre el tema del consumo saludable.					

20) Yo visité a fincas para conocer la producción agroecológica de los productores participantes del SPG / Aval de Confianza.

1 Sí □ 2 No □

21) ¿Cuantas veces usted visitó a fincas de los productores participantes del SPG / Aval de Confianza?

_____22) ¿Por favor indique que tanto cree usted que los productos son verdaderamente ecológicos?

Factores socioeconómicos

22) Edad: ___

23) Sexo: 1 □ Femenino 2 □ Masculino

24) Grado de Formación: 1 □ Primaria 2 □ Secundaria

3 □ Universidad 4 □ Formación técnica

25) ¿Para cuantas personas usted compra productos organicos?

1 □ Solo para mí 2 □ Para la familia _____

3 □ Otro:_____

26) ¿Usted tiene descendencia campesina?

1 □ Soy campesino/a y tengo mi finca 2 □ Soy campesin@ pero me tuve que ir del campo

3 □ Mis padres eran campesinos 4 □ Mis abuelos eran campesinos
5 □ No tengo descendencia campesina 6 □ Otro:_____

27) ¿Cuantas veces Usted compra productos agroecológicos?

1 □ Más que una vez a la semana 2 □ Una vez a la semana

3 □ Cada dos semanas 4 □ una vez al mes

5 □ menos que una vez al mes

28) ¿Usted forma parte de alguna organización?

1 □ Sí 2 □ No

29) ¿De qué tipo de organización se trata?

1 □ Organización Ambiental 2 □ Organización de Salud

3 □ Otro tipo de organización:_____

29) ¿Por qué razones usted compra productos organicos?

□ 1 Salud □ 2 Protección del Medio Ambiente

□ 3 Protección de Animales □ 4 Apoyo al campesino

□ 5 Otros razones: _____

30) ¿Usted tiene algunos comentarios?

11.2. Producer questionnaire (Spanish)

Lugar: **Fecha:**

Por favor considere las próximas declaraciones en detalle. Después de cada declaración por favor diga cual respuesta refleja más su opinión. Si usted está totalmente en desacuerdo con la declaración, en desacuerdo, ni de acuerdo ni en desacuerdo, de acuerdo o totalmente de acuerdo.

Propósitos

El Sistema Participativo de Garantía / Aval de Confianza cumple con los siguientes propósitos:

		Totalmente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Totalmente de acuerdo
	Pregunta	1	2	3	4	5
1	Recibo suficiente acompañamiento técnico sobre la práctica de la agroecología desde los promotores del SPG / Aval de Confianza.					
2	El SPG / Aval de Confianza no me ayuda para vender mis productos.					
3	Puedo vender mis productos avalados / certificados por el SPG a un sobreprecio.					
4	El Sistema Participativo de Garantía / el Aval de confianza me vincula con el consumidor.					
5	El SPG / Aval de Confianza visibiliza mi trabajo frente la sociedad.					
6	El SPG / Aval de Confianza contribuye que yo puedo vivir de mi producción.					
7	El SPG / Aval de Confianza no contribuye para que yo me pueda quedar en el campo.					

8) Usted visitó a fincas para conocer la producción de los compañeros.

1 □ Sí 2 □ No

9) ¿Cuantas veces usted visitó a otras fincas en temas de capacitación?

_____

10) Usted visitó a fincas para avalar la producción de otros productores.

1 □ Sí 2 □ No

11) ¿Cuantas veces usted visitó a otras fincas en términos de avalar la producción?

_____

12) Que tan satisfecho es usted con la realización del Sistema Participativo de Garantía / Aval de Confianza.

Comentarios:

Fortalezas

El Sistema Participativo de Garantía / Aval de Confianza asegura lo siguiente:

		Totalmente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Totalmente de acuerdo
	Pregunta	1	2	3	4	5
13	Nosotros como productores contribuimos a la protección del medio ambiente con el manejo agroecológico promovido por el SPG / Aval de Confianza.					
14	La producción agroecológica avalada o certificada por el SPG NO nos da más plata que la producción que teníamos antes.					
15	Productos avalados agroecológicos dan mejor salud que productos convencionales.					
16	Nosotros recibimos suficientes capacitaciones por la RECAB sobre la producción agroecológica dentro del aval de confianza.					
17	Es importante que nosotros recibiéramos más capacitaciones.					
18	El Aval de confianza / SPG ayuda a crear tejido social.					
19	El Aval de confianza NO sirve para nada para contribuir a la valoración del trabajo del campesino por parte de los consumidores.					
20	Los productos avalados están producidos 100% orgánicamente.					
21	El Aval de Confianza / SPG cuenta con un esquema de registro que no sirve para la verificación de la producción agroecologica.					
22	El consumidor recibe suficiente capacitaciones sobre temas que tienen que ver con el Aval de					

	Confianza / SPG.					
23	El Aval de confianza / SPG ofrece una alternativa confiable a los productos convencionales para el consumidor.					
24	El Aval de Confianza / SPG organiza visitas a otras fincas de producción agroecológica que contribuyen a la capacitación.					

Debilidades

Es una debilidad en los Sistemas Participativos de Garantía / Aval de Confianza:

		Totalmente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Totalmente de acuerdo
	Pregunta	1	2	3	4	5
25	Es muy fácil para mi actualizar los registros en la finca para cumplir con los requisitos del Aval de Confianza / SPG.					
26	Tengo que jornalear afuera para poder sobrevivir.					
27	Me perjudican los vecinos que no cultivan orgánicamente.					
28	La familia no cree en lo que estamos haciendo.					
29	No hay reconocimiento económico de mi producto agroecológico avalado / certificado por el SPG.					
30	A mí me pagan más plata para los productos agroecológicos avalados / certificados por el SPG.					
31	En los lugares donde venden mis productos agroecológicos no los marcan como avalados.					
32	Los productos avalados solo son para gente de alto estrato económico.					
33	Otros productores mienten porque echan químicos a su producción agroecológica avalada / certificada con el SPG.					
34	La gente no quiere valorar económicamente los productos agroecológicos.					

Factores socioeconómicos

35) Edad: ___

36) Sexo: 1 □ Femenino 2 □ Masculino

37) Grado de Formación: 1 □ Primaria 2 □ Secundaria

3 □ Universidad 4 □ Formación técnica

38) Estado civil: 1 □ Casado/a 2 □ Divorciado/a

3 □ viudo/a 4 □ Soltero/a

39) ¿Cuánta gente vive en la finca? _____

40) Ubicación de su finca: _____

41) Tamaño del predio en hectáreas:_____

42) ¿Hace cuánto tiempo que usted trabaja orgánicamente?

_____

43) ¿Hace cuánto tiempo que usted forma parte del SPG / Aval de Confianza?

___

44) ¿Quién más trabaja en la producción agrícola?

1 □ Esposo/a 2 □ Hijo/a ____

3 □ Trabajador _____ 4 □ Otro:_____

45) ¿A usted le toca jornalear afuera?

1 □ Sí 2 □ No

46) ¿En caso de Sí le toca, que es el trabajo que le toca aparte?

_____

47) ¿Usted donde nació? _____

48) ¿Sus padres de donde son? 1 Papa:_____

2 Mama:_____

49) ¿Sus padres han sido campesinos?

49.1 Papa: 1 □ Sí 2 □ No

49.2 Mama: 1 □ Sí 2 □ No

50) ¿Cómo se defina usted?

1 □ Neocampesino 2 □ Campesino

3 □ Otro:_____

11.3. Codebooks for qualitative analysis

Table 16: Codebook for qualitative analysis of actors

Code	Definition	Grounded
ACTORS_COMMERCIALIZATION	Reference to commercial activity, like the selling of products by stakeholders such as producers at a local scale at markets, shops and other channels of commercialization but also general comments on commercial activities.	7
actors_commercialization_markets	Quotes that make a reference to commercial activities on markets	23
actors_commercialization_shops	Quotes that make a reference to commercial activities in shops.	13
actors_commercialization_other channels	All other ways of commercialization that are not either markets or shops.	10
ACTORS_COMMITTEES	Reference to committees that operate in the PGS.	87
ACTORS_CONSUMERS	This code refers to any consumer activity.	40
ACTORS_COORDINATOR	Any reference to one of the three coordinators.	0
actors_coordinator_antioquia	Reference to RECAB	49
actors_coordinator_risaralda	Reference to UTP	19
actors_coordinator_valle	Reference to Red de Mercados	40
ACTORS_GOV	Governmental activity influencing and / or interacting on national and regional scale	2
actors_gov_national	-	10
actors_gov_regional	-	32
ACTORS_INDIVIDUALS	Individuals that interact in the PGS such as inspectors, trainers, a person who is in charge of quality, but also every other individual that is mentioned by the respondent or the documents is coded.	13
actors_individuals_incharge of quality	-	34
actors_individuals_inspector	-	31
actors_individuals_trainer	-	11
ACTORS_INT MOVEMENTS	International movements influencing and / or interacting with the PGS.	0
actors_int movements_ifoam	-	10
actors_int movements_maela	-	14
ACTORS_ORGANIZATIONS	Reference to organizations. Might be in a general way; when a specific organization is named it is coded by the legal status of the organization (if information is available).	42
actors_organizations_association	-	7
actors_organizations_corporation	-	7
actors_organizations_foundation	-	1
actors_organizations_other	Reference to Federations and Confederations.	9
ACTORS_OTHER EXPERIENCES	References to other PGS initiatives or alternative certification initiatives that have or had an impact on the case studies. This experiences are subcategorized into regional, national and international experiences.	2
actors_other experiences_international	-	17
actors_other experiences_national	-	17

actors_other eperiences_regional	-	3
ACTORS_PRODUCERS	Reference to producers that are members and / or participants of the PGS. The code farms has been merged to the producers as I perceive it now more like a subcategory of producers than a code on its own.	150
ACTORS_TPC	References to third party certification as having an influence on the PGS.	12
actors_tpc_control body	-	30
actors_tpc_ics	-	21
actors_tpc_inspection	-	12
actors_tpc_norm	-	19
ACTORS_UNIVERSITY	Universities influencing and / or interacting with the PGS	6
actors_university_palmira	-	11

Table 17: Codebook for qualitative analysis of the functionality of the PGS

FUNCTIONALITY	The elements and procedures that make the PGS work.	5
functionality_certificate	Reference to a kind of certificate	39
functionality_certification	Reference to certification	31
functionality_documentation	Any activity that involves documentation inside the PGS	93
functionality_evaluation	Evaluation of the producer.	10
functionality_farm visit	Farm visits by consumers, other producers or any party interested or involved in the PGS.	64
functionality_inscription	Inscription into the PGS	20
functionality_norm	Norm that sets the rules for the PGS	67
functionality_other	Elements and procedures that don't fit in any of the other categories	5
functionality_sanction	Sanctions in case of non-compliance with the rules	23
functionality_stamp	A stamp or a logo to identify the certified members of the PGS	21
functionality_training	Training as part of the PGS	31

11.4. Codebooks for quantitative analysis

Table 18: Codebook for quantitative analysis of consumer surveys

Column	Variable name	Variable description
1	CON###	Interview number with information about the region, from CONA01 – CONC24. A = Antioquia, B = Risaralda, C = Valle del Cauca
2	REG	Number of the study area, where the survey was conducted. 1 = Antioquia, 2 = Risaralda, 3 = Valle del Cauca
3	EDAD	Age of the respondent, self-reported, in years
4	SEXO	The sex of the respondent. 1 = Female, 2 = Male
5	FORM	Level of education. 1 = Primary school, 2 = Secondary school, 3 = University, 4 = Technical formation
6	QUIEN	For whom does the respondent buy PGS products on the market? 1 = Own consumption,

		2 = Family, 3 = Other
7	CUANTAG	How many people are going to consume the products?
8	DESC	Does the respondent have a campesino background? 1 = Respondent is campesino and has his / her own farm, 2 = Respondent is campesino but he / she had to leave the countryside, 3 = The parents are / were campesinos, 4 = The grandparents are / were campesinos, 5 = The respondent has no knowledge about a campesino past, 6 = Other
9	CUANTAV	How often does the respondent buy agroecological / organic products? 1 = More than one time per week, 2 = One time per week, 3 = Every two weeks, 4 = One time per month, 5 = less than one time per month
10	ORG	Is the respondent part of an organization? 1 = Yes, 2 = No
11	ORGAMB	Is the respondent member of an environmental organization? 1 = Yes, 2 = No
12	ORGSAL	Is the respondent member of an organization that deals with health? 1 = Yes, 2 = No
13	ORGOTR	Is the respondent member of another organization? 1 = Yes, 2 = No
14	RAZSAL	Does the respondent buy agroecological / organic products for health reasons? 1 = Yes, 2 = No
15	RAZAMB	Does the respondent buy agroecological / organic products for environmental reasons? 1 = Yes, 2 = No
16	RAZAN	Does the respondent buy agroecological / organic products because of ethical reasons regarding animals? 1 = Yes, 2 = No
17	RAZCAMP	Does the respondent buy agroecological / organic products to support the peasantry? 1 = Yes, 2 = No
18	RAZOT	Does the respondent buy agroecological / organic products for other reasons? 1 = Yes, 2 = No
19	COM	Qualitative comments about the questionnaire. This question was asked as the last question of the questionnaire.
20	CONSPG	Does the respondent have heard about PGS / the Aval de Confianza? 1 = Yes, 2 = No
21	SPGNOF	How is the respondent's perception about that the PGS / Aval de Confianza doesn't work in reality? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
22	SPGPART1	How is the respondent's perception about that he or she actively participates in the PGS / Aval de Confianza? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
23	SPGCAP	How is the respondent's perception about that he / she received training about the nutritional value of agroecological products? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
24	SPGPART2	How is the respondent's perception about that his / her participation in the certification process is not important? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
25	SPGCONPRO	How is the respondent's perception about that the PGS / Aval de Confianza helps to connect the consumer with the producers of the PGS? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
26	SPGVIS	How is the respondent's perception about that the PGS / Aval de Confianza helps to make the producers work visible? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
27	SPGNOENT	How is the respondent's perception about that he / she doesn't understand anything about how the system works? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
28	SPGPERS	How is the respondent's perception about that he / she personally knows the certified producers? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
29	SPGDEC	How is the respondent's perception about that he / she has influence in the taking of

		decisions in the PGS? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
30	SPGPART3	Type of participation of the respondent in the PGS. 1 = Inspector, 2 = Committee of Verification, 3 = Other, 4 = No other participation apart from buying PGS products
31	SPGPART4	Did the respondent visit farms to certify producers of the PGS? 1 = Yes, 2 = No
32	SPGPART4CUANT	How often did the respondent visit farms of members of the PGS in terms of certification?
33	ORGMENT	How is the respondent's perception about that the organic production is particularly a lie? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
34	ORGCERT1	How is the respondent's perception about that a guarantee system that is based in the word of the producer is enough for their local case? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
35	ORGCERT2	How is the respondent's perception about that it is necessary to establish a system with a higher traceability of the agroecological product? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
36	ORGCERT3	How is the respondent's perception about that the traceability of the agroecological product is not important? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
37	ORGCERT4	How is the respondent's perception about that if the producer states that the product is organic that it is a 100% like that? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
38	CONSCAP	How is the respondent's perception about that he is very interested in getting training about healthy consumption? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
39	SPGPART5	Did the respondent visit farms of members of the PGS? 1 = Yes, 2 = No
40	SPGPART5CUANT	How often did the respondent visit farms of members of the PGS? 1 = 1-2 times, 2 = 3-5 times, 3 = more than 5 times or when respondents reported "muchas veces" (a lot of times), 4 = Not at all
41	CONSCON	How strong does the respondent trust that the products are really ecologic? 1 = Strong distrusts, 2 = Distrusts, 3 = Neither trusts nor distrusts, 4 = Trusts, 5 = Strongly trusts
42	FECHA	Date when the survey was conducted.

Table 19: Codebook for quantitative analysis of producer surveys

Column	Variable name	Variable description
1	PRO###	Interview number with information about the region, from PROA01 – PROC24. A = Antioquia, B = Risaralda, C = Valle del Cauca
2	REG	Number of the study area, where the survey was conducted. 1 = Antioquia, 2 = Risaralda, 3 = Valle del Cauca
3	EDAD	Age of the respondent, self-reported, in years
4	SEXO	The sex of the respondent. 1 = Female, 2 = Male
5	FORM	Level of education. 1 = Primary school, 2 = Secondary school, 3 = University, 4 = technical formation
6	ESCIV	Civil status of the respondent. 1 = Married, 2 = Divorced, 3 = Widowed, 4 = Single
7	CUANTGENFINCA	How many people live in the farm?
8	UBIMERC	Where does the respondent sell its products?
9	PREDHA	How big is the plot of the respondent? Self-reported in hectares.
10	TIEMPAO	Since how long does the respondent work organic? Self-reported in years.

11	TIEMPSPG	Since how long is the respondent part of the PGS? Self-reported in years.
12	CUANTGENTTRAB	Who else works in the farm? Self-reported in number of people.
13	ESPOSO/A	Does the partner of the respondent work in the farm? 1 = Yes, 2 = No
14	HIJOS/AS	Do the sons or daughters of the respondent work in the farm? 1 = Yes, 2 = No
15	CUANTHIJOS/AS	How many sons / daughters are working in the farm?
16	TRABAJADOR	Are there workers apart from family members that help in the farm? 1 = Yes, 2 = No
17	CUANTTRABAJADOR	How many workers apart from family members work in the farm?
18	OTRO	Are there other people working in the farm apart from partner, children or workers? 1 = Yes, 2 = No
19	CUANTOTRO	How many other people are working in the farm?
20	TRABAPARTE	Does the respondent have to work additionally of being a farmer? 1 = Yes, 2 = No
21	QUEAPARTE	What type of additional work?
22	LUGNAC	Birth place of the respondent.
23	PAPALUGNAC	Where was the father of the respondent born?
24	MAMALUGNAC	Where was the mother of the respondent born?
25	PAPACAMP	Was the father of the respondent a campesino? 1 = Yes, 2 = No
26	MAMACAMP	Was the mother of the respondent a campesina? 1 = Yes, 2 = No
27	AUTODEF	How does the respondent define himself? 1 = Neocampesino, 2 = Campesino, 3 = Other
28	COM	Qualitative comments about the questionnaire. This question was asked as the last question of the questionnaire.
29	ACOMTEC	How is the respondent's perception about that he / she receives sufficient technical expertice about agroecological / organic practice by the promotor of the PGS / Aval de Confianza? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
30	SPGNOAYUDAVENDER	How is the respondent's perception about that the PGS / Aval de Confianza doesn't help to sell their produce? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
31	SPGSOBREPRECIO	How is the respondent's perception about that he / she can sell his / her PGS certified products at a surplus? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
32	SPGSOBREPRECIO_COM	Qualitative comments about Question 31.
33	VINCCONS	How is the respondent's perception about that the PGS / Aval de Confianza connects him / her with the consumer? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
34	VISISOC	How is the respondent's perception about that the PGS / Aval de Confianza makes his / her work visible to society? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
35	PUEDVIV	How is the respondent's perception about that the PGS / Aval de Confianza contributes that he / she can live from his / her production? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
36	SPGNOCONTR	How is the respondent's perception about that the PGS / Aval de Confianza doesn't contribute that he / she can stay in the countryside? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
37	VISITAFINCASCAP	Did the respondent visit farms of colleagues to get to know their production? 1 = Yes, 2 = No
38	VISITAFINCASCAP_CUANT	How often?

39	VISITAFINCASINSP	Did the respondent visit farms of other producers to certify their production? 1 = Yes, 2 = No
40	VISITAFINCASINSP_CUANT	How often?
41	SPGEVAL	How satisfied is the producer with the implementation of the PGS / Aval de Confianza? 1 = Totally dissatisfied, 2 = Dissatisfied, 3 = Neither dissatisfied nor satisfied, 4 = Satisfied, 5 = Very satisfied
42	MEDAMB	How is the respondent's perception about that the producers contribute to environmental protection by the application of agroecological practices promoted by the PGS / Aval de Confianza? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
43	NOMASPLATA	How is the respondent's perception about that the agroecological produce certified by the PGS / Aval de Confianza didn't increase the financial income compared to the production they had before? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
44	NOMASPLATA_COM	Qualitative comments about Question 43.
45	MEJSAL	How is the respondent's perception about that PGS certified agroecological products are healthier than conventional products? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
46	CAPACIT	How is the respondent's perception about that the promoter of the PGS / Aval de Confianza provided enough training about agroecological production? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
47	CAPACIT_COM	Qualitative comments about Question 46.
48	MASCAPACIT	How is the respondent's perception about that the producers would get more training? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
49	MASCAPACIT_COM	Qualitative comments about Question 48.
50	TEJSOC	How is the respondent's perception about that the PGS / Aval de Confianza helps to create social networks? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
51	NOSIRVALCONS	How is the respondent's perception about that the PGS / Aval de Confianza doesn't contribute to the appreciation of the producers work by the consumers? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
52	PROD100%ORG	How is the respondent's perception about that the PGS certified products are 100% organic? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
53	NOSIRVREG	How is the respondent's perception about that the PGS / Aval de Confianza features a scheme for data record that doesn't serve for the verification of agroecological production? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
54	CAPACIT	How is the respondent's perception about that the consumer receives enough training about topics that have to do with the PGS / Aval de Confianza? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
55	CAPACIT_COM	Qualitative comments about Question 54.
56	ALTERNATIVA	How is the respondent's perception about that the PGS certified products offer are a trustable alternative to conventional products for the consumer? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
57	VISITFINCCAPACIT	How is the respondent's perception about that the PGS / Aval de Confianza facilitates farm visits to other agroecological farms for training? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree

58	DOCFACIL	How is the respondent's perception about that it is very easy for him / her to keep the paperwork up to date to comply with the rules of the PGS / Aval de Confianza? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
59	DOCFACIL_COM	Qualitative comments about Question 58.
60	JORNALEO2	How is the respondent's perception about that he has to work apart (apart of being a producer) so that he can "survive"? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
61	JORNALEO2_COM	Qualitative comments about Question 60.
62	VECPERJUDIC	How is the respondent's perception about that the neighbours that don't produce organic / agroecological bother them? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
63	FAMNOCREE	How is the respondent's perception about that the family doesn't believe in what they are doing? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
64	RECECONEG	How is the respondent's perception about that there is no financial acknowledgement of their agroecological products certified by the PGS / Aval de Confianza? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
65	RECECONEG_COM	Qualitative comments about Question 65.
66	RECECOPOS	How is the respondent's perception about that he gets a surplus for his agroecological products certified by the PGS / Aval de Confianza? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
67	RECECOPOS_COM	Qualitative comments about Question 66.
68	FALTAMARC	How is the respondent's perception about that in the places of sale their agroecological products are not marked as PGS certified? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
69	FALTAMARC_COM	Qualitative comments about Question 68.
70	SOLOPARICOS	How is the respondent's perception about that the PGS certified products are only for people from a high social stratum? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
71	SOLOPARICOS_COM	Qualitative comments about Question 70.
72	OTRMENT	How is the respondent's perception about that other producers' cheat by using chemical farm inputs to their PGS certified agroecological production? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
73	OTRMENT_COM	Qualitative comments about Question 72.
74	FALTAVALEC	How is the respondent's perception about that consumers don't want to appreciate their agroecological products economically? 1 = Totally disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, 5 = Totally agree
75	FALTAVALEC_COM	Qualitative comments about Question 74.
76	FECHA	Date when the survey was conducted.

11.5. Lists of key informants, documents, surveyed consumers and producers

Table 20: List of key informants with information about their corresponding organization, sex and level of education.

Interview partner	Organization	Sex	Level of education
KI1	RECAB	Male	University
KI2	RECAB	Male	University
KI3	UTP	Male	University
KI4	Red de Mercados Agroecológicos Campesinos del Valle del Cauca	Male	University

Table 21: List of documents with information about document name, document type, pages, publication date and the corresponding region.

Document	Document name	Document type	Pages	Publication date	Region
DOC1	*Aval de Garantia de Producción Ecológica (Aval de Confianza) y Sistema de Garantia de Calidad para la Producción Ecológica de la Red Colombiana de Agricultura Bioógica RECAB Antioquia*	Foundation document	80	2005	Antioquia
DOC2	*Plan de Manejo Agroecológico y Ecológico para el Sistema Interno de Control dentro del Aval de Garantía de la Producción Ecológica (Aval de Confianza)*	Farm visit checklist	29	2014	Antioquia
DOC3	*Sistema Participativo de Garantías Risaralda*	Foundation document	46	2013	Risaralda
DOC4	*Acuerdos de Vida – Principios, criterios y procedimientos para depositar más confianza en los productores ecológicos*	Foundation document	20	2010	Valle del Cauca

Table 22: List of surveyed consumers with information about region (first column: A = Antioquia, B = Risaralda, C= Valle del Cauca), age, sex and level of education.

Interview partner	Age	Sex	Level of education
CONA01	40	Male	University
CONA02	42	Male	University
CONA03	53	Male	University
CONA04	44	Male	Technical formation
CONA05	31	Male	University
CONA06	35	Female	University
CONA07	80	Female	University
CONA08	42	Male	Secondary school
CONA09	44	Male	Secondary school
CONA10	35	Male	University
CONA11	46	Female	Technical formation
CONA12	50	Male	University
CONA13	41	Female	Secondary school
CONA14	28	Female	University
CONA15	30	Female	University
CONA16	70	Male	University
CONA17	63	Male	Primary school
CONA18	53	Female	University
CONA19	35	Female	Secondary school
CONA20	48	Male	Primary school
CONB01	49	Female	Primary school
CONB02	27	Female	University
CONB03	26	Female	University
CONB04	83	Male	University
CONB05	24	Male	Secondary school
CONB06	59	Female	Secondary school
CONB07	66	Female	Secondary school
CONB08	46	Female	Secondary school
CONB09	43	Female	Secondary school
CONB10	59	Male	Secondary school
CONB11	23	Male	University
CONB12	24	Male	No information
CONB13	48	Male	Secondary school
CONB14	19	Male	Secondary school
CONB15	56	Male	Primary school
CONB16	70	Male	Secondary school
CONB17	63	Male	Secondary school
CONC01	29	Male	University

CONC02	35	Female	University
CONC03	77	Male	Primary school
CONC04	40	Male	University
CONC05	37	Female	Secondary school
CONC06	24	Female	Secondary school
CONC07	68	Male	University
CONC08	50	Female	University
CONC09	78	Male	Primary school
CONC10	53	Male	University
CONC11	43	Female	University
CONC12	61	Female	University
CONC13	60	Female	University
CONC14	29	Male	University
CONC15	58	Female	Technical formation
CONC16	66	Male	University
CONC17	55	Female	University
CONC18	51	Male	University
CONC19	28	Female	Technical formation
CONC20	34	Male	Technical formation
CONC21	53	Male	Technical formation
CONC22	46	Female	Technical formation
CONC23	33	Male	University
CONC24	30	Female	University

Table 23: List of surveyed producers with information about region (first column: A = Antioquia, B = Risaralda, C= Valle del Cauca), age, sex, level of education, the number of years working organic and the number of years being part of a PGS. * If age and years working organic is the same, the interviewed producer stated that he was working organic for all his life.

Interview partner	Age	Sex	Level of education	Years working organic	Years being part of the PGS
PROA01	40	Male	Technical formation	5	1
PROA02	49	Male	Secondary school	25	1
PROA03	43	Female	Primary school	20	1
PROA04	46	Male	Primary school	14	1
PROA05	33	Female	University	6	1
PROA06	51	Male	University	14	1
PROA07	45	Male	Primary school	12	1
PROA08	38	Male	Secondary school	4	1
PROB01	52	Male	Secondary school	52*	1
PROB02	16	Female	Secondary school	12	2

PROB03	59	Female	Secondary school	59*	2
PROB04	56	Male	Technical formation	56*	2
PROB05	31	Male	Secondary school	3	1
PROB06	53	Male	University	53*	2
PROB07	25	Male	University	3	1
PROB08	32	Female	University	2	1
PROC01	61	Male	Technical formation	7	4
PROC02	31	Female	University	14	4
PROC03	59	Male	Secondary school	12	4
PROC04	27	Female	Technical formation	16	4
PROC05	58	Female	Technical formation	14	4
PROC06	56	Female	Primary school	10	4
PROC07	52	Female	University	30	4
PROC08	34	Female	Secondary school	24	4
PROC09	60	Female	University	18	4