ERASMUS UNIVERSITEIT ROTTERDAM

aeclipse

INTERNATIONAL RESEARCH PROJECT

2025

Rethinking Fair Trade and Sustainable Certification for Coffee Producers: **Feasibility and Impact of Participatory Guarantee Systems in Rural Colombia.**

ERASMUS TRUSTFONDS

ESTABLISHED BY AECLIPSE

ERASMUS SCHOOL OF ECONOMICS, ROTTERDAM

“Rethinking Fair Trade and Sustainable Certification for Coffee Producers: Feasibility and Impact of Participatory Guarantee Systems in Rural Colombia.”

Project Leader and Coordinator: Paula Gisbert Ferrer

Research Supervisors: Matei Cristian Cate, Maria Mendes Silva, Luukas Heydemann

Fieldtrip Supervisors: Kate Grinfogele, Siddarth Raman

External Relations Supervior: Phoebe Geleen

Researchers:

- David Kahn
- Freddy Colodro
- Gerasimos Pavlou
- Johannes Steinmaier
- Ludovic Tillette De Clermont-Tonnerre
- Timm Seckel
- Maria Clara Leoni

Executive Summary

This report examines the potential of Participatory Guarantee Systems (PGS) as an alternative certification model for smallholder coffee producers in Colombia, with a focus on Argote Specialty Coffee in Nariño. Colombian farmers continue to face volatile prices, rising costs, and climate pressures, while traditional Third-Party Certifications (TPCs) remain costly and bureaucratic, often excluding the very smallholders they were designed to benefit. By contrast, PGS offers a more accessible and participatory approach built on trust, peer review, and collective governance, though adoption in Colombia is still limited despite growing legal recognition.

Drawing on case studies, interviews with farmers in Génova, a European consumer survey, a willingness-to-pay experiment, and an economic cost–benefit analysis, the report finds that producers show strong interest in PGS and a willingness to participate, even if training and administrative support are required. European consumers, though largely unfamiliar with PGS, view it as credible once explained and express a strong preference for fairness and sustainability in coffee production. The financial analysis indicates that PGS could improve margins for smallholder farms by lowering input costs and potentially unlocking price premiums, with a payback period of four to six years. Finally, a comparative analysis of case studies identifies recurring, transferable design features of functioning PGS initiatives, with these features being translated into a practical structure and phased implementation plan tailored to Argote.

Although PGS alone is not sufficient to meet the certification and traceability requirements of the European Union, it can strengthen transparency, support compliance, and complement formal certification schemes. For Argote Specialty Coffee, adopting PGS represents an opportunity to empower farmers, enhance credibility with buyers, and pioneer a hybrid model that balances local participation with international market access.

Table of Contents I

0. Executive Summary
1. Introduction: Context, Motivation & Research Questions
2. Background Research
    2.1. Overview of Latin America Coffee Industry
        2.1.1. Context & History
        2.1.2. Key Producing Countries
        2.1.3. The Role of Coffee in Latin American Countries
        2.1.4. Colombia's Coffee Trade and Exports
        2.1.5. Producer Profiles in Colombia & Latin America
        2.1.6. Consumer Trends and Target Profiles
    2.2. Certification Systems Overview
        2.2.1. Third Party Certification
        2.2.2. PGS
    2.3. EU Legislation
    2.4. Overview of Argote Specialty Coffee
3. Research Design
    3.1. Qualitative Research
        3.1.1. Case Study Analysis
        3.1.2. Interviews
    3.2. Quantitative Research
        3.2.1. Customer Survey & WTP Experiment
        3.2.2. Financial & Economic Analysis
4. Main Findings
    4.1. PGS Structure from Case Studies
        4.1.1. Legal & Institutional Context
        4.1.2. Governance Structure
        4.1.3. Membership Process
        4.1.4. Inspection Process
        4.1.5. Standards & Indicators
        4.1.6. Certification Seal
        4.1.7. Cost & Workload Estimates
        4.1.8. Implementation Roadmap
    4.2. Interviews
        4.2.1. Field Interviews
        4.2.2. Fairtrade Netherlands Interview
        4.2.3. PGS Risaralda Interview
    4.3. Customer Survey & WTP Experiment
    4.4. Proposal for Argote's PGS Model
        4.4.1. Legal & Institutional Context
        4.4.2. Governance Structure
        4.4.3. Membership Process
        4.4.4. Inspection Process

Table of Contents II

4.4.5. Standards & Indicators
4.4.6. Certification Seal
4.4.7. Economic feasibility of PGS implementation
4.4.8. Implementation Roadmap
5. Discussion
5.1. Synthesis of Main Findings
5.2. Implications
5.2.1. General Implications
5.2.2. Implications for Argote
5.3. Research Limitations
6. Conclusion
6.1. Key Takeaways & Recommendations
6.2. Future Research
7. References
8. Appendix
8.1. Interview Protocol
8.2.Interview Summaries
8.1.1. Field Interviews
8.1.2. Fairtrade Netherlands interview
8.1.3. PGS Risaralda Interview
8.3. Survey Questions
8.4. WTP Platform
8.5. Financial & Economic analysis

1.Introduction

CONTEXT, MOTIVATION & RESEARCH QUESTIONS

Coffee production is deeply embedded in Colombia's economic, social, and cultural fabric. Since its introduction in the 18th century, coffee has shaped livelihoods and driven national development, at one point representing nearly 10% of Colombia's GDP and 30% of agricultural GDP (Cárdenas Gutiérrez, 1993). While economic diversification and market liberalization have reduced its relative weight, the sector remains crucial: in 2023, more than 550,000 Colombian families (96% of them smallholders cultivating fewer than five hectares) relied on coffee as their primary source of income (Federación Nacional de Cafeteros de Colombia, 2024). Beyond its economic contribution, coffee has supported social development, with producing regions historically reporting higher education and health indicators than other rural areas.

Despite this importance, Colombia's smallholder backbone faces mounting challenges. Price volatility, climate change, and structural inequalities threaten farmer livelihoods, while international markets increasingly demand certification as a condition for access. Third-Party Certifications (TPCs), such as Fairtrade or Organic, have enabled some producers to secure premiums, but remain costly, bureaucratic, and often detached from local realities (Cuéllar-Padilla & Ganuza-Fernandez, 2018; FAO, 2018). For most smallholders, fees and compliance requirements exceed their capacity, excluding them from the very opportunities designed to foster inclusion.

In response, Participatory Guarantee Systems (PGS) have emerged as a locally focused alternative. Defined by IFOAM as "quality assurance systems that certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks, and knowledge exchange," PGS decentralize certification, reduce costs through peer review, and strengthen direct relationships between producers, consumers, and institutions. While PGS has grown steadily in Brazil and Peru, its adoption in Colombia remains limited, with only a handful of initiatives covering a fraction of the country's organic coffee land. Nonetheless, the Colombian policy environment is increasingly supportive: Resolution 464 of 2017 and the National Agroecology Policy (2022–2026) formally recognize PGS, while regional plans highlight its potential to promote inclusive, sustainable, and community-driven agriculture.

Against this backdrop, this report investigates whether PGS can be a viable certification model for Colombian smallholder coffee farmers, focusing on the case of Argote Specialty Coffee in Nariño. Specifically, it examines:

1. What lessons can be drawn from existing PGS initiatives in Latin America for application in Colombia's coffee sector?
2. How do smallholder producers in Génova, Nariño perceive the opportunities and challenges of PGS adoption?
3. How do European consumers value PGS certification compared to traditional systems, and what are the implications for economic feasibility?

The report combines qualitative and quantitative methods - case studies, farmer interviews, consumer surveys, a willingness-to-pay experiment, and financial analysis - to answer these questions. Section 3 provides background on the Latin American coffee industry, certification systems, EU legislation, and Argote's supply chain. Section 4 outlines the research design, followed by findings (Section 5), discussion of implications (Section 6), and conclusions with recommendations and avenues for future research (Section 7).

2.Background Research

2.1. Overview of the Latin American Coffee Industry

2.1.1. Context and History

Latin America plays a crucial role in global coffee production, accounting for a significant share of the world's supply. The region's climate, high-altitude farms, and rich volcanic soil provide ideal growing conditions, especially for high-quality beans.

The cultivation of coffee in Latin America began in the early 18th century when European colonial powers introduced the crop to the region. Coffee was first brought from Africa and the Arabian Peninsula to the Caribbean - most notably to the French colony of Saint-Domingue (now Haiti) around the 1720s. From there, it quickly spread to other parts of the region. The Dutch introduced it to Suriname, while the Spanish and Portuguese brought it to their colonies as well.

By the 19th century, coffee had become a major export crop throughout Latin America. Its expansion was often closely tied to regional development, land reform, and labor systems. In Brazil, large-scale plantations, or fazendas, relied heavily on enslaved labor until abolition in 1888. In Colombia and Central America, coffee cultivation shaped rural economies and became a cornerstone of national identity.

Today, Brazil, Colombia, and other Andean nations, such as Peru and Ecuador, are among the world's leading coffee exporters. Latin American coffee is primarily of the Arabica variety, known for its mild acidity, complex flavors, and aromatic qualities. The cultural significance of coffee remains strong across the region, not only as a key economic product but also as a symbol of tradition, hospitality, and national pride.

2.1.2. Key Producing Countries

According to the United States Department of Agriculture (2025), the top coffee-producing countries in 2024/25 are (see Figure 1):

1. Brazil: 38% of global production
2. Vietnam: 17% of global production
3. Colombia: 7% of global production
4. Indonesia: 6% of global production
5. Ethiopia: 5% of global production

Colombia stands out as the leading producer of high-altitude Arabica coffee, renowned for its bright acidity, citrusy notes, and smooth mouthfeel.

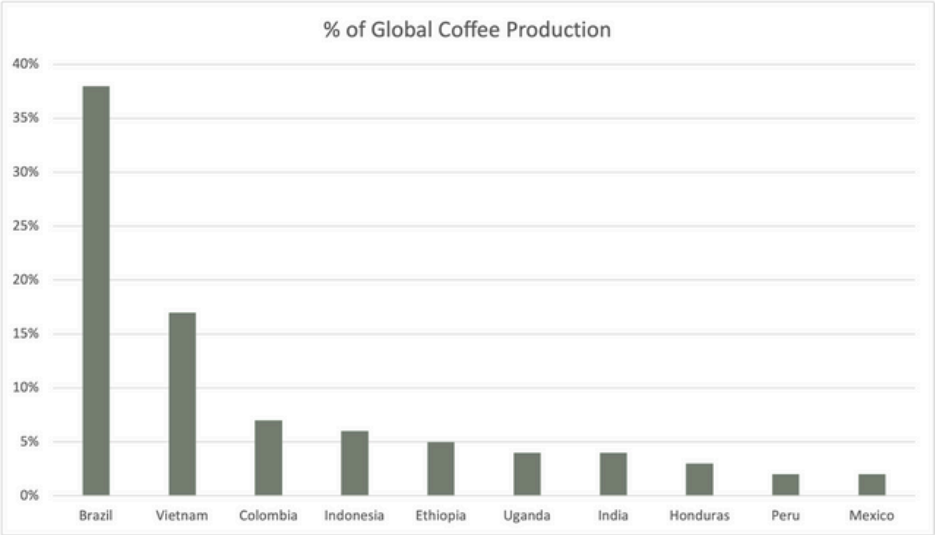


Figure 1: Share of Global Coffee Production in 2024/25 (Source: United States Department of Agriculture, 2025)

Latin America's prominence in coffee production is largely due to its position within the Coffee Belt - a global zone located between the Tropic of Cancer and the Tropic of Capricorn. This belt provides the perfect balance of temperature, rainfall, and elevation, making Latin America an ideal region for cultivating high-quality coffee beans.

Within this belt, coffee is grown in three primary types of regions:

- Andean Highlands: Countries such as Colombia, Ecuador, and Peru cultivate coffee at high altitudes (1,200–2,200 meters above sea level). The cooler temperatures slow down the ripening process, allowing beans to develop higher acidity and complex flavors with citrus and floral notes.
- Volcanic Regions: Guatemala, El Salvador, and Costa Rica benefit from nutrient-rich volcanic soil, which enhances the mineral content of coffee beans. This results in a well-balanced cup with chocolatey, nutty, and fruity notes.
- Lowland and Coastal Areas: Brazil and parts of Mexico grow coffee in lower-altitude regions (300–1,200 meters). These areas produce smooth, mild coffee with nutty and caramel flavors due to the warmer climate and faster maturation of the coffee cherries.

The diversity of the growing conditions allows Latin America to produce a wide range of coffee profiles with unique characteristics (Coffee, 2025):

1. *Colombian Coffee:* Known for its bright acidity, medium body, and citrus or chocolate notes.
2. *Brazilian Coffee:* Low acidity with nutty, chocolate, and caramel notes.
3. *Costa Rican Coffee:* Balanced acidity with fruity and floral hints.
4. *Guatemalan Coffee*: Bold body with spicy, chocolaty undertones.

2.1.3. The Role of Coffee in Latin American Countries

The coffee industry has played an important role in the economic development of Latin America. As one of the most important agricultural exports, historically, coffee production has contributed to GDP growth, employment generation, and rural development. However, high dependence on the coffee industry has led to some economic vulnerabilities, showing some countries the need to diversify their economies. For example, during the Great Depression, Brazil was highly dependent on coffee exports to the US, and because of this, they saw a drastic fall in the demand and prices of their product, leading to severe economic contraction (Topik & Clarence-Smith, 2003). The Brazilian example has served other countries as a reference to not being too dependent on one export, underlining the need to diversify their economies.

Given that we already know the main producers of coffee worldwide (Figure 1), we now focus on the impact that coffee has on national economies in the region by 2023.

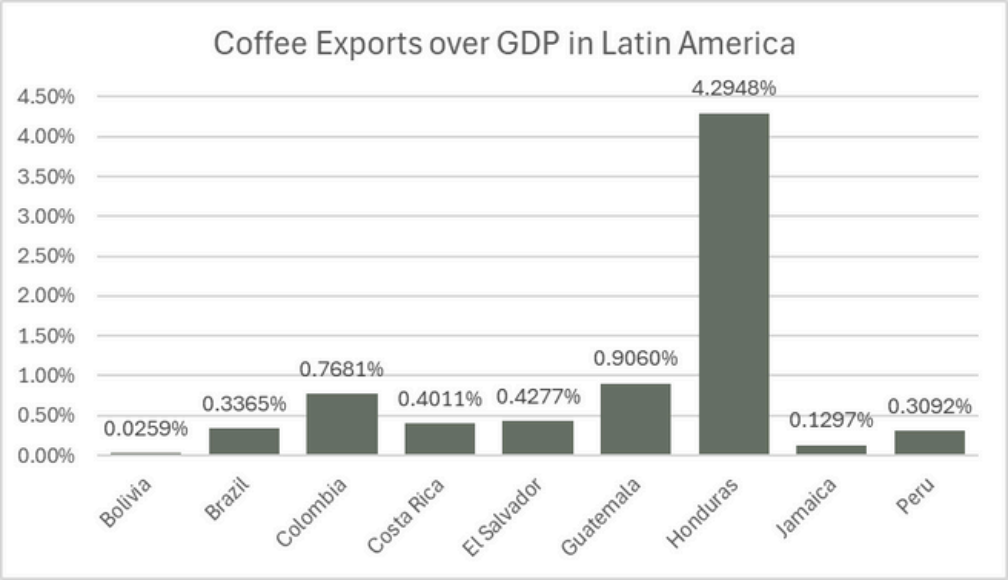


Figure 2: Coffee Exports over GDP in Latin America (Source: World Bank GDP data, WITS coffee exports, Coffee, not roasted or decaffeinated, 2023)

In the graph above, we can appreciate the relative importance of the coffee industry for different Latin American countries' economies. We can see that Honduras heavily relies on their coffee exports, highlighting also that they are among the top 10 coffee producers worldwide. However, all the other coffee producing countries do not rely heavily on their coffee exports for economic development, showing they have more diversified economies and focus on other industries. Even other world-leading coffee producers, such as Brazil, Colombia, or Peru, do not rely heavily on coffee exports.

Further focusing on the contribution of coffee to economic development in Colombia, we can observe a shift over the last decades. In the 50's, coffee production represented almost 10% of Colombia's GDP, and almost 30% of the agricultural GDP. However, since then, the country underwent significant economic diversification (J. Cárdenas Gutiérrez, 1993), leading to a decrease in the relative importance of the coffee industry. This shift reflects a broader structural transformation, as other sectors, such as oil, mining, and services, gained prominence. According to Saenz, Alvarez, and Brock (2021), some of the key factors for the decline of the coffee industry's relative importance were the collapse of the International Coffee Agreement (ICA) quota system in 1989, market liberalization policies, and shifts in prices.

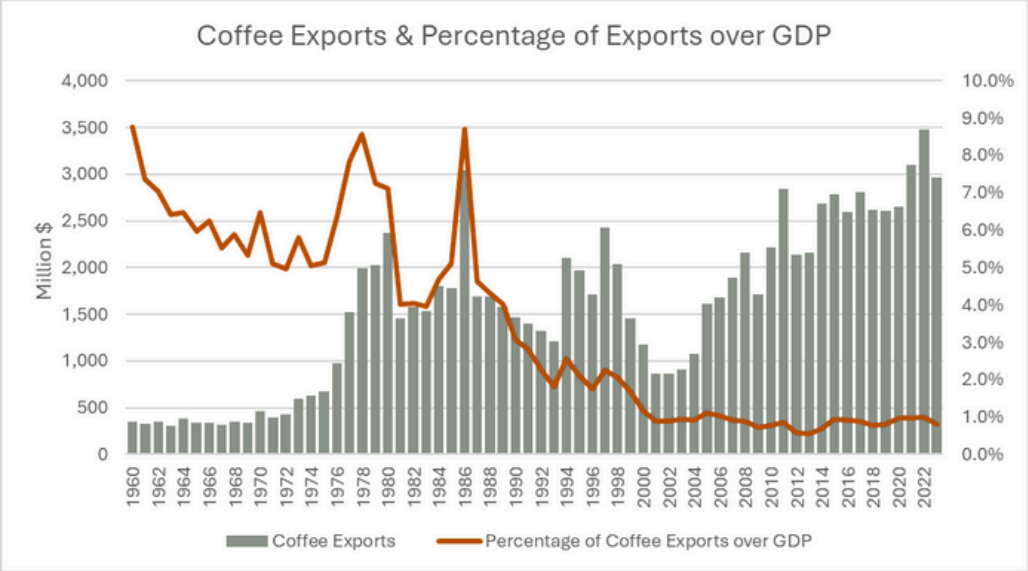


Figure 3: Coffee Exports & Percentage of Exports over GDP (Source: World Bank Data [for GDP], Federación Nacional de Cafeteros de Colombia [for coffee exports]).

In the graph above, we can observe the spike in coffee exports during the late 80s, and the subsequent significant fall in coffee production given the collapse of the quota system. We can also notice the rise in coffee exports at the start of the 20th century, with a continuous rise until recent years, as Colombia has been able to reach export values similar to the late 80s peak.

Beyond its contribution to GDP, the coffee industry plays a crucial role in employment and rural development. By 1993, the coffee industry was the main source of agricultural employment, representing 40% of agricultural employment at the time (J. Cárdenas Gutiérrez, 1993). By 2023, there were 552.814 coffee producers in Colombia, with 96.7% being small producers (up to 5 hectares), 2.4% medium producers (5 to 10 hectares) and 1% large producers (+10 hectares) (Federación Nacional de Cafeteros de Colombia, 2024). The latter indirectly supports further employment through associated industries such as transportation, processing and export logistics. Historically, in Colombia, growing regions exhibited higher school enrollment rates, lower child mortality, and better health indicators compared to other rural areas (J. Cárdenas Gutiérrez, 1993).

To sum up, the coffee industry has been a cornerstone for economic development in South America, particularly in Colombia. As it continues to contribute to GDP, employment, trade, and rural employment, while some structural shifts and policies have altered its relative economic significance, it is still a crucial industry for the country's development.

2.1.4. Colombia's Coffee Trade and Exports

Colombia is one of the most important coffee-exporting nations, contributing 7% of global coffee exports. However, in 2024, the export value of Colombian coffee was around $3 billion ($2,914,733,000), marking a 29% decline compared to the previous year (International Trade Centre, 2023). This drop is attributed to fluctuations in global coffee prices, climate-related challenges, and shifting consumer demand.

According to the International Trade Centre (2023), Colombia exports coffee primarily to (see Figure 4):

1. United States: 40.8% of Colombia's exports
2. Belgium: 7.4% of Colombia's exports
3. Germany: 6.9% of Colombia's exports

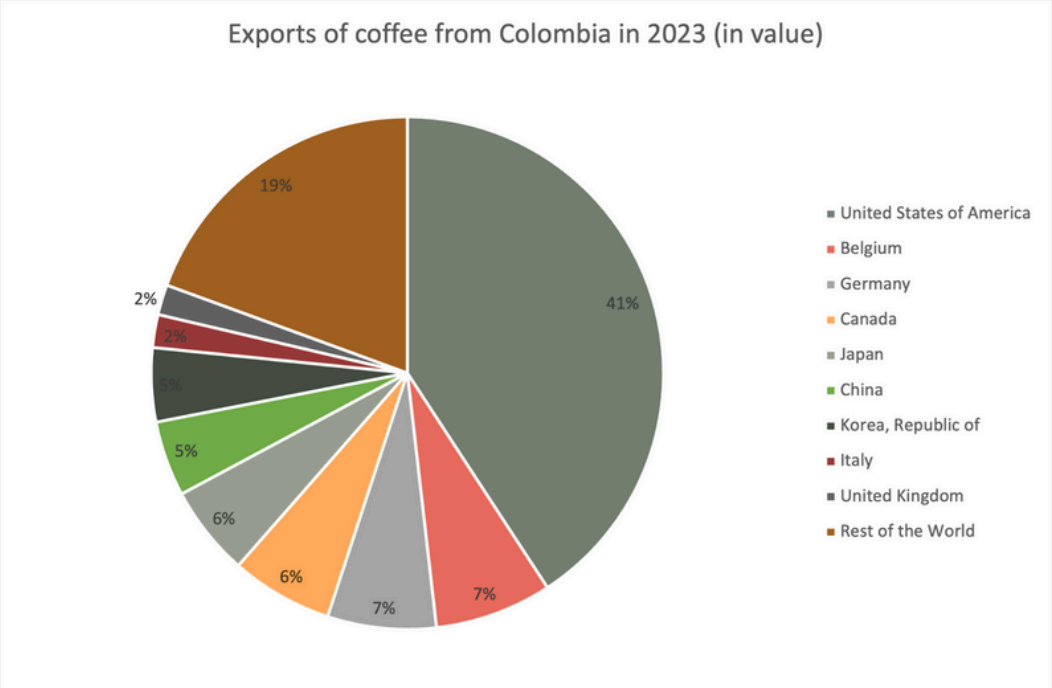


Figure 2: Share of Coffee Exports from Colombia in 2023 (measured in total value) (Source: International Trade Centre, 2023).

2.1.5. Producer Profiles in Colombia & Latin America

Coffee Production Structures in Latin America

Coffee production in Latin America is characterized by its diversity in farm size, land tenure systems, and the degree of market integration. While countries like Brazil exhibit highly mechanized, large-scale plantation systems, much of Central America and Colombia rely heavily on smallholder producers operating on plots with typically less than three hectares (Gáfaro, Ibáñez, Sánchez-Ordoñez, & Ortiz, 2020). These small farms are central to rural livelihoods, despite facing persistent structural disadvantages (Gómez, Rueda, & Lambin, 2019).

Land Inequality and Historical Context

Land inequality remains one of the most enduring features shaping agricultural production in Latin America. As shown in Gáfaro et al. (2020), the region exhibits high levels of land concentration, with larger farms enjoying better market access and higher labor productivity. Colombia, in particular, has struggled with ineffective land reforms since the 1930s. According to Berry (2017), ambiguous tenure arrangements and elite resistance have perpetuated a system where smallholders remain economically vulnerable and politically marginalized.

This dynamic has direct implications for coffee producers, as land access determines not only productive capacity but also eligibility for credit and state support. De Luca and Sekeris (2011) further emphasize that intermediate levels of land inequality may lead to conflict, highlighting the interdependence of agrarian structures and rural stability.

Changing Landscapes and Production Models

Recent research by Meyfroidt et al. (2021) illustrates that coffee-growing landscapes across Latin America are undergoing significant spatial and institutional transformations. These include the relocation of production to higher elevations, the abandonment of marginal lands, and increased intensification in accessible zones. Colombia reflects these trends in unique ways, influenced by both its topography and the long-standing presence of institutional actors such as the Federación Nacional de Cafeteros (FNC). The FNC has historically supported smallholders by providing technical assistance, coordinating access to certifications, and managing group schemes that reduce barriers to sustainability compliance (Rueda & Lambin, 2013).

However, Samoggia and Fantini (2023) argue that despite this institutional infrastructure, governance in the Colombian coffee chain remains uneven. While cooperatives offer support in terms of market access, they lack influence over value distribution in a global supply chain increasingly dominated by multinational traders and roasters (Utrilla-Catalan, Sánchez-Palacios, & López-Ruiz, 2022).

Economic Pressures and Market Integration

Colombian coffee producers face the dual challenge of low farm-gate prices and rising production costs. The dissolution of the International Coffee Agreement in 1989 marked a shift towards liberalized trade, weakening producer countries' leverage. As Utrilla-Catalan et al. (2022) demonstrate, the value chain has become increasingly unequal, with producing countries capturing a shrinking share of total profits.

These economic conditions disproportionately affect smallholders, who often cannot scale up production or access specialty markets. The pressure to participate in certification schemes or export-grade markets may exacerbate existing inequalities, especially when institutional support is uneven across regions (Rubio-Jovel, Arce, & Vargas, 2024).

Cooperatives, Institutions, and Succession

As the literature shows, cooperatives remain one of the few stabilizing forces for coffee producers in Colombia. Bavorová, Hamade, and Hinkelmann (2024) show that membership in cooperatives significantly increases the likelihood of farm succession, particularly when combined with land tenure security and adequate farm income. These institutions not only support technical and marketing needs but also provide a platform for generational renewal in rural communities.

Yet, the persistence of low profitability and limited land access continues to drive rural youth away from agriculture. In Tolima, for example, many young people view coffee farming as economically unviable unless paired with cooperative support and land inheritance (Bavorová et al., 2024).

Displacement and Persistence

While this study focuses on Colombia, insights from Guatemala and Nicaragua offer valuable parallels. Carte, Schmook, Radel, and Johnson (2019) introduce the notion of "slow displacement," which implies that smallholder families are gradually pushed off the land due to shrinking access and declining food security. Thus, migration becomes both a symptom and a coping strategy. This phenomenon resonates with parts of Colombia where rural households rely on off-farm income or remittances to sustain agricultural production.

Taken together, these dynamics reveal a landscape in which smallholder coffee producers, especially in Colombia, must navigate structural inequality, shifting production environments, and uneven institutional support to sustain their livelihoods and secure their place in global markets.

2.1.6. Consumer Trends and Target Profiles

Understanding who consumes coffee and, more importantly, who is likely to pay a premium for it, is essential for producers, especially those exploring sustainable certification models such as Participatory Guarantee Systems (PGS). In the following section, we explain how demographic factors could influence coffee consumption and what the portraits of the target consumer of coffee (in general) and of PGS coffee are. The reason for making the distinction is that recent consumer trends have increasingly emphasized ethical and sustainable consumption. Research on Fair Trade coffee, for instance, shows its growing appeal among younger consumers. Robichaud and Yu (2022) found that up to 73% of Generation Z consumers are willing to pay a premium for Fair Trade coffee, reflecting a broader shift towards sustainability.

Demographic Factors Influencing Coffee Consumption

AGE

Research shows that coffee consumption increases with age. In the United States, approximately 72% of adults over 60 are classified as coffee drinkers (Rehm et al., 2020). People aged 26–50 tend to consume coffee most frequently, averaging two to three cups daily. Conversely, younger adults (18–25) consume less, often limiting intake to once a week. Similarly, Rehm et al. (2020) found that 74.3% of adults over 70 drink coffee regularly, while only 38.9% of adults aged 20–30 do the same.

EDUCATION

Education strongly correlates with coffee consumption frequency and preferences. Individuals with higher education levels, particularly those holding university degrees, tend to drink coffee more frequently and are more likely to prefer black coffee without additives. College-educated individuals are also more likely to support ethical and sustainable coffee certifications (Rehm et al., 2020).

INCOME

Income is another significant driver. Higher-income individuals are more likely to drink coffee and in larger quantities. For example, 64.4% of high-income earners consume coffee, compared to only 50.3% of individuals below the federal poverty line (Rehm et al., 2020). Urban living, often associated with higher income, also influences consumption habits, with urban consumers more likely to drink coffee in cafes (Rehm et al., 2020).

GENDER

Both previously cited studies agree that there is no significant difference in coffee consumption frequency between men and women. However, men tend to consume slightly larger quantities (357g/day vs. 293g/day), while women are more likely to consume coffee in social settings such as cafes (Rehm et al., 2020).

Target Coffee Consumer

Taking these variables into account, the profile of the most profitable consumer for Colombian coffee is:

- Aged 51–70
- Male
- College-educated or higher
- High income
- Urban resident

Target Consumers for PGS Coffee

While the most profitable consumer tends to be older and high-income, the ideal consumer for PGS-certified coffee reflects a different profile, rooted in ethical awareness rather than price alone.

Age

Millennials and Gen Z (25–45) are more eco-conscious and seek transparency in sourcing. They actively prefer sustainable brands (GourmetPro, 2024; Robichaud and Yu, 2022).

Gender

Women are more likely to support fair trade and ethical consumption models, with studies showing stronger moral obligation among female university students (Doran, 2009).

Education

Higher education levels correlate with support for alternative certifications like PGS (Doran, 2009).

Income

Middle- to high-income consumers are more willing to pay a small premium for eco-labeled or fairly traded coffee (Heliyon, 2021).

Location

Urban consumers in cities with established specialty coffee cultures are more aware of ethical sourcing and thus more inclined to purchase PGS-certified coffee (Grand View Research, 2024).

2.2 Certification Systems Overview

2.2.1 Third-Party Certifications

Overview of Third-Party Certification in Coffee

Third-party certification (TPC), also called voluntary certification, refers to an independent organization reviewing the manufacturing process of a product, with the aim of ensuring that it adheres to specified standards regarding aspects like quality, performance, or safety (NSF, 2020). In the context of sustainability certification, this assurance specifically refers to the product forming part of a value chain which ensures social, economic, and/or environmental sustainability (Jones et al., 2024).

The trend of third-party sustainability standards began in the late 1980s and 1990s, with the world's first Fairtrade Certification Mark, Stichting Max Havelaar, emerging in 1988 to "improve the living and working conditions of small farmers and agricultural workers in disadvantaged regions" (Max Havelaar, 2007). Small-scale farmers, particularly in the coffee sector, have long been the most vulnerable to volatile global prices, evidenced by the price crisis induced by the collapse of the International Coffee Agreement in 1989 (Coffee & Conservation, 2006). TPCs have since rapidly expanded, offering different mechanisms such as premiums and minimum guaranteed prices to protect producers, while also implementing standards to improve product quality and protect the environment. Academic literature examining TPCs in the context of coffee production has found that while certifications can deliver concrete benefits to producers, significant limitations may arise as well, potentially undercutting the intended outcomes.

While third party sustainability certification defines a broad category consisting of varied labels and standards, a general common structure can be inferred. TPC typically involves regular independent audits carried out by certifiers, verifying that producers comply with set standards. Many certification schemes provide price premiums to incentivize more sustainable production practices, while Fairtrade includes a guaranteed minimum price to protect producers from market volatility. The overarching mission of most TPCs includes promises of stable income, improved quality, and sustainable practices, though how much a label focuses on a particular dimension can vary (Jones et al., 2024).

Despite noble objectives, limitations identified in the overarching model of third-party certifications can serve as an argument for the implementation of alternative certification mechanisms, notably Participatory Guarantee Systems. By emphasizing local stakeholder involvement and more context-specific standards, PGS may offer more accessible, cost-effective, and equitable pathways for sustainable coffee production. The following section will review the academic literature on third-party certification, with a focus on agriculture and coffee, aiming to identify both proven benefits as well as key limitations stemming from the model.

Economic and Welfare Impacts

While empirical research has found that certification tends to improve financial outcomes for producers, this effect can be context-specific and is not without limitations. A systematic review by Jones et al. (2024) states that Fair Trade and Organic, both of which provide a higher market price for certified coffee, are generally found to have a positive effect on economic sustainability. However, actual gains may be marginal, as increased revenues are often offset by costs of certification and compliance. Thanks to their ability to afford these costs, larger producers benefit disproportionately more from certification. Examining GlobalGAP certification for mango farmers in Ghana, Akrong et al. (2022) show that high income farmers were more likely to afford the costs of certification-approved inputs as well as other costs of compliance - in this context, certification increased farmers' propensity to sell to high-value markets, increasing revenues. Dragusanu et al. (2022) determine that when the Fair Trade minimum price is binding, certification leads to higher sales prices, increased revenues, and reduced closures for Costa Rican coffee mills and farms. The paper, however, shows uneven distribution of these gains, finding that incomes increase for farm owners but not for unskilled workers, the poorest in the sector.

Cross-continental research by Jena & Grote (2022) further shows mixed results. Certified cooperatives in Ethiopia actually performed worse in terms of yields and incomes compared to non-certified counterparts, explained by the "cooperative effect" - suffering from limitations such as low technical skills, low level of base finance, and an overly top-down management structure. Indian cooperatives experienced both yield and price increases under certification. In Nicaragua, corresponding price increases for coffee were offset by lower yields, resulting in no changes in household income. Such findings emphasize that rather than providing universal benefits, certification's effects are in fact particularly contingent on local market conditions and organizational capacity. Holzapfel & Wollni (2014) similarly identify heterogeneous effects by organizational structure, finding that certification benefits for farmers were greater when belonging to producer-managed rather than exporter-managed groups.

Beyond financial indicators, certification has similarly been found to have an effect on household welfare, though effects vary by type of certification. Meemken et al. (2017) demonstrate that Fair Trade tends to increase non-food expenditures of households as well as improve children's education, while Organic is associated with higher food expenditures and nutritional outcomes. As in previous studies, the authors find that these positive effects are moderated by the additional costs of compliance, eroding net benefits. Aiming to take into account broader impacts than the general narrow focus on yields and revenues, and focusing particularly on small-scale coffee producers, Vellema et al. (2015) deconstruct household income into categories corresponding to specific income-generating activities. Their results show that farm certification increased coffee income, but at the expense of other on-farm agricultural production and agricultural wage labour; as such, certification did not affect total income, only its composition. This increased specialization leaves smallholder producers more dependent on infamously volatile global coffee prices, highlighting an unintended consequence of certification that may reduce overall livelihood resilience.

Collectively, these studies suggest TPCs can generate economic and welfare benefits, yet frequently fail to equitably support the most vulnerable stakeholders in the coffee-sector. Top-down, externally driven governance can limit local participation and empowerment. High compliance costs tend to erode net gains, while specialization pressures expose households to market volatility. Consequently, alternative approaches should strive for reduced costs, increased worker empowerment, and adaptability to varied local contexts.

Governance & Value Chain Distribution

As TPCs have transitioned from niche to mainstream markets over recent decades, they have gained significant influence as private regulators within the global agrifood sector (Hatanaka et al., 2005). This shift has been driven by factors such as globalization of the agrifood system, consumer demand for varied quality attributes, and limitations in public regulatory frameworks. While this growth has contributed to improvements in sustainability, Anders et al. (2010) note that competition among many certifiers, together with private retailers' push for their preferred schemes, can complicate how value and credibility are distributed along the value chain.

A notable example of how TPCs act as a de facto enforcer of standards in the global agrifood industry is the recognition of EureGAP (now GlobalGAP) as a global quality assurance system in food trade. More than 30 European and 15 non-European retail chains require proof of GlobalGAP certification from their suppliers (Flaschsbarth et al., 2020). A growing number of retailers from large supermarket chains to smaller retail chains demand compliance with increasingly stringent standards set by TPCs (Halabi et Lin, 2017). At the same time governments increasingly integrate and recognize these actors in public policies (Marx et al., 2024). This yields a growing influence to certifiers on the value chain distribution of the agrifood system, its governance and the relationship between consumers, producers, traders and retailers.

However, the effects of TPCs on the distribution of value across supply chains remain contentious. Joshua & Neilson (2017) found mixed impacts, noting that while certain studies highlight positive outcomes for farmers' livelihoods under specific conditions, the majority report neutral or inconsistent results. Particularly concerning is the distribution of certification premiums. Valkila et al. (2010) reveal that a substantial share of the premium intended for coffee producers ultimately benefits roasters and retailers rather than reaching the producers themselves, thus undermining the equitable distribution goals of these certifications.

Systemic challenges further complicate the role of TPCs. Raynolds (2009) categorizes Fairtrade coffee buyers into three distinct groups - mission-driven, quality-driven, and market-driven - each group characterized by differing levels of commitment to equitable and fair producer compensation and duration of producer-buyer relationships. The proliferation of TPCs in conventional markets, particularly driven by market-driven buyers, can thus create tensions regarding the credibility and intended outcomes of these certifications. Rathgens et al. (2020) critique existing literature for its insufficient exploration of participatory alternative trade systems, suggesting that a broader focus is necessary to address deeper systemic and social challenges within global trade frameworks effectively.

These findings underscore significant governance and systemic shortcomings in traditional TPC models. Alternative certification systems should focus on enhancing transparency, redistributing power within value chains, reducing the influence of intermediaries, and promoting equitable and sustainable producer-buyer relationships.

Socio-Cultural Impacts

Beyond economic and governance dimensions, the socio-cultural impacts of TPCs introduce additional complexities at the local level. For instance, Paredes et al. (2025) report that Fairtrade certification in Peru fosters greater inclusion of marginalized groups and enhances food production through sustainable agricultural practices. In contrast, Overbeek (2019) argues that such certifications can marginalize smaller farmers by favoring those with greater resources, while Jones et al. (2024) highlight a notable gap in the literature regarding the economic benefits for women and landless laborers, with female participation frequently overlooked.

Politically, Córdoba (2024) illustrates that although TPCs contribute to improvements in education, health, and infrastructure on Nicaraguan coffee plantations, they can also inhibit unionization and collective worker action, as landowners may use certification as a substitute for regulatory or union pressures. Moreover, while the price premiums associated with TPCs can bolster food security by enhancing farmers' purchasing power - a mechanism detailed by Schleifer et al. (2019) - there is limited evidence that these benefits extend to broader food security outcomes through means such as female empowerment or crop diversification.

Additionally, Overbeek (2019) cautions that from the consumer perspective, TPCs may create a moral hazard whereby buyers feel that simply purchasing Fairtrade products resolves deeper developmental issues. In reality, such dynamics can exacerbate inequalities among producers, diminish political engagement among workers, and - as Córdoba (2024) further shows - perpetuate gender disparities through uneven benefit distribution. These insights underscore the importance of adopting a bottom-up approach that better empowers smallholder farmers, fosters genuine worker participation, and addresses gender inequality.

In sum, third-party certifications have delivered market access and, in some contexts, higher incomes and social benefits, but these gains are uneven and often eroded by compliance costs, top-down governance, and mixed distribution of premiums. These limits motivate examining complementary or alternative models - especially Participatory Guarantee Systems - that can lower barriers for smallholders, strengthen local participation, and, where needed, be combined with select third-party elements in hybrid pathways.

2.2.2. Participatory Guarantee Systems (PGS)

What is PGS?

Participatory Guarantee Systems (PGS) are defined by IFOAM – Organics International (2008) as "locally focused quality assurance systems that certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange." This certification scheme aims to provide a reliable guarantee to consumers of the fulfilment of organic practice standards throughout the value chain of an agricultural product. It has the particularity of having a bottom-up approach to certification that heavily relies on the joint participation and cooperation of stakeholders, from farmers to consumers and local authorities, throughout the process. This makes organic certification adaptable to stakeholders' specific needs.

On the one hand, it allows smallholder farmers to access organic markets without the burden of strict practice standards set by third-party certification entities and the associated high compliance costs. On the other hand, it provides consumers with greater access to local, organic, and more affordable agricultural product options (FAO, 2018).

Although there is not one specific approach to implement or manage a PGS, IFOAM has identified a set of key elements and features associated with this scheme, as well as a basic internal structure and organization, based on several successful initiatives around the world (IFOAM, 2019).

As the key elements of PGS, IFOAM (2019) highlights:

- **Shared Vision:** Identification and agreement among stakeholders on the guiding principles of the system and its goals, e.g., autonomy of local communities;
- Participation: Active engagement of all stakeholders throughout the PGS implementation process and daily processes;
- **Transparency:** All stakeholders have access to information on how the full system works, making a basic understanding of it possible for everyone;
- **Trust:** PGS heavily relies on stakeholders trusting each other, particularly consumers trusting producers' commitment towards a set of organic practices throughout the production process;
- **Horizontality:** A non-hierarchical system, where responsibilities are shared among stakeholders and each has equal rights in the decision-making process;
- **Learning Process:** A Dynamic system of continuous exchange of ideas and experiences between stakeholders.

Regarding key features, the following are usually associated with PGS initiatives:

- **Grassroots Organization**: PGS is mainly built by and for the stakeholders that are involved in the production and consumption of the product(s) the system covers;
- **Suitable for Smallholder Agriculture:** PGS is usually developed as a more affordable alternative for smallholder family farmers, which also involves less amount of paperwork than traditional certification schemes;
- **Principles and Values that Enhance Livelihoods:** PGS is based on a set of clearly-defined principles that aim to improve the well-being of the stakeholders involved;
- **Mechanisms to Support Farmers:** PGS oftentimes involves not only the establishment of an inclusive certification process but also the development of specific activities/events or technical advice to support farmers;
- **Norms Conceived by All Stakeholders:** The standards for the organic integrity of the product(s) covered by the PGS are jointly defined and recognized by every stakeholder involved;
- **Documented Management Systems and Procedures:** Although with different detailing and complexity levels depending on the PGS initiative, procedures and progress through record keeping are, to a smaller or higher degree, documented by stakeholders;
- **Mechanisms to Verify Producer Compliance:** Since with PGS, verification of compliance with established organic production standards does not rely on a third-party organization, stakeholders define their own methods of verifying producers' compliance;
- **Farmer's Pledge:** Producers joining a PGS agree to established norms or standards via a record or document;
- **Seals and Labels:** PGS initiatives use an official stamp as a formal endorsement to key documents and a label to foster trust in the consumer on the organic reliability of the product;
- **Clear and Pre-Defined Consequences for Non-Compliance:** Although non-compliance to the established production standards in PGS initiatives is typically low, consequences to such possibility must be defined beforehand and agreed upon by stakeholders.

When it comes to their internal organizational structure, PGS is oftentimes composed by:

- **Peer Review Group:** Mainly composed of farmers, it is responsible for the monitoring of compliance with the established standards and norms of the PGS initiative by the producers involved. It decides on the renewal of certificates for reviewed farms;
- **Certification Committee:** Has the final decision on the renewal of certificates for reviewed farmers, approval of new members to the PGS initiative, and enforcement of consequences for non-compliance;
- **Administrative Staff:** Responsible for the day-to-day management of the PGS initiative, including managing paperwork and keeping track of peer review schedules.
- **Council:** Responsible for the external relations of the PGS at the regional and/or national levels, for initiatives where systems have expanded to larger regions/markets (e.g., national)

Hence, as Argote is composed by smallholder family producers who are currently not able to have their coffee organically certified by the typical third-party certification systems due to the high compliance costs associated with it, PGS presents itself as a more affordable and inclusive alternative for accessing organic coffee markets. By adopting PGS, farmers could foster consumers' trust in their coffee products, in terms of organic and sustainable production practices, as well as strengthen collaboration and knowledge sharing with other local stakeholders that could be involved, such as local authorities or rural advisors. This peer support within the PGS could enhance farming practices and increase the market competitiveness of farmers.

How does PGS compare to TPC?

PGS is different from today's dominating Third-Party Certification (TPC) systems in several fundamental ways.

Regarding the historical development of a global market for organic agricultural products, the prevailing method of ensuring certain standards up until the 1990s was first-party certification, leaving little room for customers to be certain about farming practices. As the IFOAM explains in their overview standards and certification, the growing demand for organic products was not met by the supply, leaving room for fraud to gain additional profits from higher premiums. Policymakers reacted by establishing standards for organic agriculture. While the IFOAM published its first paper on basic standards in 1980, the EU first passed a legal framework in the year 1991, and other parts of the world followed suit.

Those frameworks included TPC as a requirement to label products as organic. While this standardization led to vast market growth and larger awareness for organic products, it also brought several consequences unintended by the pioneers of organic agriculture in the first place. Therefore, the alternative PGS arose, with the term first being coined after an IFOAM event in Brazil in 2004.

The table below, based on Cuéllar-Padilla & Ganuza-Fernandez (2018), summarizes the main differences between TPC and PGS. (Note that TPC labels include policy-defined labels such as the green EU organic label as well as the Fairtrade or Rainforest Alliance label.)

Table 1 - Comparison between TPC & PGS

Parameter	TPC (based on ER834/2007)	PGS
Decision making	The decisions on what is evaluated and how are taken at an institutional level and by the certification entity or body. Producers and consumers are passive actors; no decisions from them are required.	All the decisions on what, how, and when are taken at the social network level. Producers and consumers define what they want it to be and how.
Guarantee responsible(s)	Certification bodies or entities (public administrations or private enterprises). Always non-local technical and institutional figures.	Local social networks of producers and consumers
Bureaucracy required	Complex documents designed at technical bureaus. Public administration and private enterprises assume the task.	Flexible documents are designed by the networks. Producers and consumers design how to translate into documents the principles to be evaluated and the procedures.
Costs	Expensive mechanism. Costs related to qualified technical staff (auditors and managers at the certification body); maintenance of the certification body structure; travel expenses of the technical inspectors to the farms.	Cheap procedure. The implication of the members allow to substitute monetary costs by time, which is not remunerated; costs related to travel expenses of the visit group to the farm.
Transparency	Confidentiality is guaranteed by law. None of the operator's information can be published.	Complete. All the members of the networks know exactly the results of the proceedings.
Non-conformity consequences	The certification is denied. Loss of commercialisation opportunities.	The producer is sent off the network and loses not only the guarantee but the confidence inside the network (social consequences). They lose commercialization channels, support, and mutual aid mechanisms.
Relationship between producer and consumers	Abstract, indirect. Risk of “consumer deskilling” (Jaffe and Gertler, 2006) and loss of sovereignty	Consumers are active stakeholders, involved in design and practices, regaining sovereignty.

Authors of PGS literature put emphasis not only on the practical differences to TPC systems but also the different convictions PGS are based on. As Cuéllar-Padilla and Ganuza-Fernandez (2018) summarize, “PGS are based on a system of reference that is highly dissimilar from the hegemonic system. They represent a new framework that is inspired by other cognitive systems. They view resource management and productivity differently; they favour a more holistic worldview and foster the interaction between different forms of knowledge, including traditional knowledge, as well as creation and implementation of knowledge within specific contexts; and operate on a value-weighted scale where emphasis is placed on factors such as equity, solidarity and justice. Overall, procedures are rooted in the principles of radical democracy. This enormous shift brings one of their main limits: the development of a very political and critical approach is required to a group of producers (and consumers, when they get implied) to develop such a governance system.”

PGS presence in Latin America[1]

Latin America is at the heart of PGS existence, with the term “Participatory Guarantee System” being first adopted in an IFOAM international workshop in Brazil in 2004, as mentioned above. Since then, PGS has increased its presence in the region as an alternative system to the costly and less inclusive TPC systems for organic agriculture (Figure 3).

[1]This section is based on FiBL & IFOAM (2024).

Figure 3 – PGS presence in Latin America (Source: IFOAM, 2025)

In 2022, organic agriculture involved more than 235 thousand producers and covered approximately 14 million land hectares across Latin America, 1.3 % of the region's total agricultural land. Of these, around 2 million were dedicated to the production of organic coffee, accounting for 14.3% of the total organic agricultural area. This highlights the relevant presence of coffee in the organic markets of the region. Furthermore, exports of organic products from the region to the US or EU were significant, with Argentina and Colombia being the primary exporters. The prevalence and distribution of organic agriculture across the region can be seen in more detail in Table 1.

Nevertheless, it is interesting to note a pattern: countries where organic agriculture is relatively practiced more tend to have fewer organic producers, while countries where organic agriculture is relatively practiced less often have a higher number of organic producers. This hints at a wider presence of smallholder farmers in organic production for countries with a smaller organic agriculture presence and a higher market concentration for countries where organic agriculture is more developed. Colombia positions itself mid-range in the region in terms of both organic agriculture development and the number of organic producers, with 1.2% of the country's total agricultural land being dedicated to organic production and 3160 farmers engaged in organic production. Most importantly, more than 55% of organic agricultural land is dedicated to the production of coffee.

Table 2 – Organic Agriculture in Latin America (2022)

Country/Territory	Organic Area for Coffee [ha]	Total Organic Area [ha]	Organic Share of Total Agricultural Land [%]	Producers [no.]	Export to EU and USA [MT]
Latin America (Total)	2,078,958	14,057,882	1.3	235,688	768,272
Argentina	-	4,075,035	2.7	1,376	285,702
Bolivia	7,987	2,348,406	1.7	12,157	21,890
Brazil	996,413	3,269,235	0.5	24,250	17,897
Chile	-	320,064	0.4	1,950	54,949
Colombia	74,600	134,624	1.2	3,160	244,194
Costa Rica	1,000	12,052	0.7	63	28,791
Ecuador	2,449	103,290	0.1	8,610	59,219
El Salvador	2,087	2,087	0.1	361	392
Guatemala	70,207	151,385	0.7	8,101	14,569
Honduras	42,105	66,179	0.2	3,116	1,775
Mexico	432,141	707,820	1.3	51,658	53,728
Nicaragua	38,840	38,840	0.2	8,792	1,079
Paraguay	116,595	1,105,299	0.2	1,746	208
Peru	285,534	529,771	1.3	107,846	34,709
Uruguay	-	274,099	2.1	1,815	1,415
Venezuela	1,000	-	0.0	-	524

Although the presence of PGS in organic agriculture in the region has increased in the last two decades, by comparing Tables 1 and 2, one can easily conclude that TPC systems are still the most common and widely used certification schemes. Nevertheless, in 2022, there were 17,787 producers certified under Participatory Guarantee Systems (PGS), involving over 63,000 farmers and covering 16,214 hectares of land (Table 2). While PGS-certified areas are still modest compared to third-party certification (TPC), the system has gained steady ground, especially in countries with strong smallholder networks.

Brazil, Peru, and Cuba lead the region in PGS adoption. Peru stands out with 6,519 certified producers and 7,487 hectares under PGS, the highest in Latin America. Interestingly, Peru also has a significant organic coffee sector (285,000 ha), demonstrating that PGS and an export-driven organic coffee market can coexist. Brazil, though dominated by TPC in organic farming, still has a notable PGS presence, with 8,908 certified producers working 2,564 hectares. Brazil's dual-market structure allows both large-scale TPC-certified agribusiness and a growing PGS sector to exist simultaneously, making it a unique case in the region.

Colombia's PGS sector, however, remains small but growing (Figure 4). With just 373 certified producers and 1,530 hectares, it's a fraction of the country's 74,600 hectares of organic coffee land. This suggests that Colombia's organic coffee sector is highly integrated into international markets, where TPC is preferred over PGS. Yet, the six active PGS initiatives (and one in development) hint at gradual expansion, particularly among smallholders looking for affordable, locally focused certification.

Figure 4 - PGS presence in Colombia (Source: IFOAM, 2025)

The divide between PGS and TPC in Latin America is clear: PGS thrives in local, smallholder markets, while TPC dominates export-driven organic production. Countries with stronger organic export markets, such as Argentina and Mexico, have very little PGS presence, reinforcing the idea that PGS is more viable for domestic markets rather than international trade. Conversely, countries with weaker economies and fragmented agricultural structures, like Bolivia and Cuba, have higher PGS adoption, suggesting that PGS is better suited for smallholder-driven organic production rather than large-scale agribusiness.

Scaling PGS remains a challenge as its certified area is still tiny compared to the region's total organic farmland. But with 144 operational PGS initiatives and 16 more underway, the model is carving out a niche, offering a practical alternative for farmers locked out of costly TPC schemes.

Table 3 - PGS in Latin America (2022)

Country/Territory	Number of Producers Certified	Number of Producers Involved	Operational Initiatives	Initiatives Under Development	PGS-Certified Land (ha)
Latin America (Total)	17,787	63,797	144	16	16,214
Argentina	20	40	1	1	170
Belize	12	30	1	0	-
Bolivia	262	1,720	45	0	107
Brazil	8,908	9,054	29	2	2,564
Chile	264	264	24	0	908
Colombia	373	664	6	1	1,530
Costa Rica	69	74	7	0	187
Cuba	3,712	-	-	-	-
Ecuador	657	1,897	5	0	80
El Salvador	18	18	1	0	-
Guatemala	25	50	1	0	-
Honduras	-	-	-	-	-
Mexico	205	360	6	2	975
Paraguay	320	1,112	1	1	1,655
Peru	6,519	44,302	16	0	7,487
Uruguay	135	500	1	0	550

While PGS has steadily gained ground in Latin America, its expansion, as highlighted at the International Seminar on PGS that took place in Tarapoto, Peru in October 2023, faces structural and policy-related challenges:

- National recognition of PGS adds legality but often complicates processes, detracting from PGS principles like simplicity and inclusiveness.
- Official recognition tends to focus on control rather than promoting PGS, highlighting the need for supportive policies.
- Collaboration between agroecological farmers, consumers, and institutions is crucial for democratizing healthy food, though progress is limited.

Nevertheless, despite these challenges, PGS continues to thrive, forming collaborative bonds to overcome difficulties, as noted in the joint text adopted by the Seminar's participants – representatives from 13 Latin American countries and IFOAM.

Benefits & Challenges of PGS

Based on literature review, the success or failure of a Participatory Guarantee System ultimately rests on the proper alignment of the individual motives of its members. In that sense, examining a PGS is no different than examining any common-action problem, especially since, compared to a traditional TPC, the outside pressure is secondary compared to the internal motivation. The incentives structure is not abstract, it can be quantified and, therefore, measured. Farreras and Salvador (2022) provide us with clear guidance on what the core elements for the initial building of a PGS look like. Clear boundaries, perceived economic value, conformity assessment and collective choice rules, a shared vision, firm leadership, and common norms of trust, amongst others.

The long-term sustainability of a PGS is dependent on more refined aspects of common-pool problem solving, such as a definite sanctioning process, mechanisms for conflict resolution, and other governance systems. As it is made evident, therefore, the economic benefits are not a sufficient condition neither for the emergence nor the maintenance of such a system.

Understanding the drivers that make PGS successful in the long run is essential to combat its inherent limitations. As Chaparro-Africano and Paramo (2022) point out, PGSs are highly dependent on voluntary work, are characterized by strong heterogeneity that leads to internal conflict, and have difficulty operating without outside funding. Furthermore, the number of participants exacerbates trust and coordination issues, even though the full-time participation of all members is a necessary element to success. Since some individuals have a different time perception than others, they might get discouraged early or provide lower effort to the common goal if the benefits are not "timely" realized. Such behavior, if not properly accounted for with rules and procedures, might eventually lead to the breakdown of the system.

2.3 EU legislation

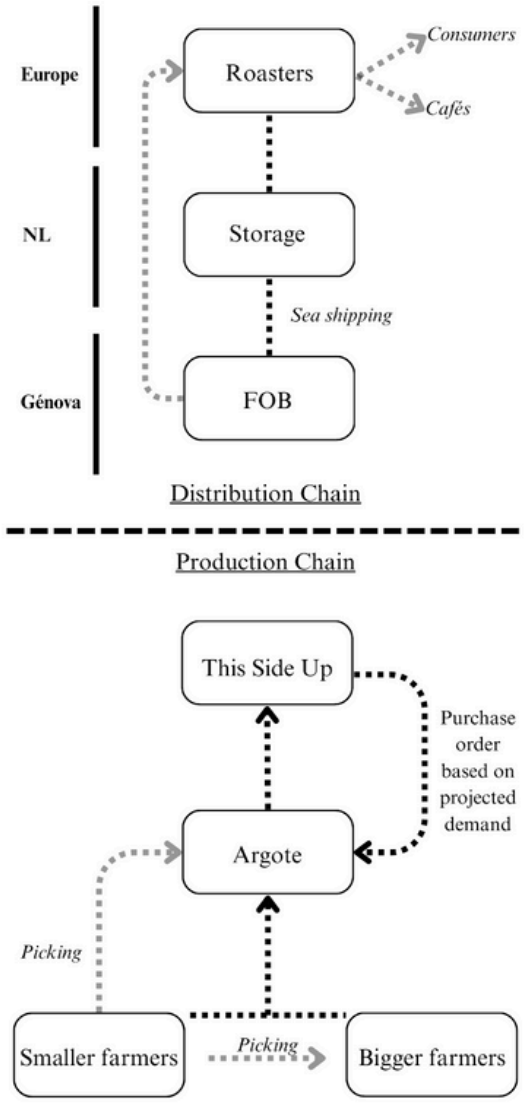
To export to the European Union, the Participatory Guarantee System (PGS) alone is insufficient as a certification. The EU enforces strict legal and commercial requirements that go beyond PGS. Coffee producers must comply with mandatory legislation, food safety standards, and often obtain third-party certifications. While exporting without certification may be possible in low-volume, bulk coffee segments, it is much harder to access premium prices or stable buyer relationships. PGS can support traceability and sustainability, but it is not always sufficient without formal certification, especially for organic claims (CBI, 2024).

The European Union Deforestation Regulation (EUDR) prohibits imports of coffee cultivated on land deforested after 31 December 2020 or linked to human rights violations. Compliance requires full traceability of each batch from farm to export. The Corporate Sustainability Due Diligence Directive (CS3D) further obliges companies supplying the EU market to identify and address human rights and environmental risks in their supply chains. In addition, producers must meet EU food safety standards, including limits on pesticide residues, moisture control, and hygienic post-harvest processes. Buyers also expect quality assurance, such as cupping and physical grading.

Beyond these legal obligations, most EU buyers demand third-party certifications that demonstrate sustainability, traceability, and ethical sourcing. Rainforest Alliance, Fairtrade, 4C, and EU Organic are among the most common. Although PGS is not recognized as a substitute under EU rules, it can serve as a foundation for group certification models that reduce costs and support compliance.

In conclusion, PGS offers a valuable base for sustainability and accountability, but it is not enough to guarantee access to the European market. To export successfully, coffee producers must complement PGS with legal compliance, formal traceability systems, food safety measures, and, in most cases, third-party certifications.

2.4 Overview Of Argote Specialty Coffee



Production and Processing of Coffee

Argote Specialty Coffee is based in Génova, a municipality in the Nariño department of Colombia. Juan Pablo Argote, head of Argote Specialty Coffee, serves as the point of contact for other farmers based in Génova who also supply their coffee to This Side Up. Juan Pablo's role is that of both a producer and the intermediary between dozens of small farmers who export their coffee to This Side Up. Each year, This Side Up determines the volume of coffee to be traded based on projected demand from its roaster clients. Juan Pablo then oversees the transfer of coffee from local farmers, negotiates fixed prices for their harvests, and manages Argote Specialty Coffee's operations.

Coffee producers cultivate lots as big as 2 hectares and micro lots as small as 700 trees (about a third of an hectare). Collaboration between farmers is common with some farmers working at bigger farms in the collection of coffee while maintaining their own lots independently. It is common for bigger farmers, especially those in advanced ages, to hire smaller lot owners for picking coffee beans. Individual landowners are unable to fulfill the work necessary to pick over an hectare of coffee trees without the help of other pickers. For micro-lot owners, this work supplements the limited income from their smaller harvests and provides a more stable income during the picking season. In the case of Argote Specialty Coffee, pickers are remunerated in accordance to the kilos picked. This allows pickers to achieve higher wages than an hourly pay alternative.

Quality is upheld by Juan Pablo and the This Side Up team. Even though some methods may differ between farmers, common practices such as washing green coffee and drying beans in open air set a higher standard of quality. Some farmers experiment with fermentation methods and the production of different coffee varieties; however most of the coffee is sold in bulk through Argote Specialty Coffee. In exceptional cases, coffee of a distinct quality may be sold as single lot origin coffee.

Distribution of Green Beans

This Side Up works as a direct trade intermediary of Argote Specialty Coffee for their European clients. The company distinguishes itself from traditional intermediaries by offering more transparency in how coffee is produced, priced and traded. They also offer their clients the opportunity to have a direct relationship with producers through initiatives such as the Field Barista Project.

Coffee is Free On Board (FOB) origin, meaning that This Side Up assumes responsibility over the purchased coffee from the place of origin. This Side Up takes care of the product's transportation, customs, taxes, and insurance. Depending on the service procured by the client, coffee may be financed and stored by This Side Up in their warehouse based in the Netherlands or completely financed and stored by the final client. Green beans are finally collected or distributed to roasters who process and package the coffee to be sold directly to consumers or cafés throughout Europe.

Taken together, the background research shows a sector where smallholders operate in uneven value chains, third-party certification delivers benefits but with high and unequal costs, and PGS offers a lower-cost, participatory option that is locally credible but not sufficient for export recognition in stricter markets. These conditions motivate the mixed-methods design that follows: comparative case analysis to specify a workable PGS model, field interviews to assess participation capacity and perceived costs/benefits, a consumer survey with a willingness-to-pay experiment to test the market signal for PGS relative to TPC, and a farm-level financial model to evaluate viability under realistic assumptions. The next section sets out this research design and how each component ties back to the constraints and opportunities identified above.

3. Research Design

3.1. QUALITATIVE RESEARCH

3.1.1. Case Studies Analysis

The qualitative component used a comparative, case-oriented design to develop an operational Participatory Guarantee System (PGS) blueprint for Argote Specialty Coffee. In practical terms, this meant comparing multiple documented PGS implementations and extracting common patterns and workable procedures that could be transferred to Argote. We conducted a focused review of peer-reviewed and practitioner sources on Latin American PGSs. Inclusion required that a source describe an operating or piloted system and report concrete organisational features (governance bodies, membership and inspection procedures, seal rules where available, and costs) in smallholder settings comparable to Colombia. Sources with weaker formal methods were retained when they contributed details about specific processes – such as committee composition or inspection methods – because these elements are crucial for blueprint construction even if the surrounding analysis is less rigorous.

Data extraction and synthesis

To make the evidence comparable and traceable, we organised it in two spreadsheets that served different purposes. First, a case-study matrix captured, for each identified PGS, the country and initiation year; the scope (farm or network scale, products, stakeholders); the structure (governance type, frequency of meetings and inspections, certification steps); explicit and implicit costs; the institutional context (legal recognition and external support); the level of participation; reported impacts (economic, social, environmental); and challenges or limitations. This allowed us to visualize a cross-case framework that made similarities and differences visible at a glance and helped identify what actually varies across PGSs and why.

Second, a design-evidence index was aligned to the intended blueprint outline. Seventeen key sources were mapped to sections on the legal and institutional context, governance structure, membership process, inspection process, standards and indicators, certification seal, cost and workload, and implementation. For each source-section intersection we recorded a short relevance note and a depth tag (surface, moderate, high). The depth tag indicates how much actionable detail a source provides for that section and therefore how heavily it should inform the blueprint. We also noted explicit links among sources (for example, handbooks derived from earlier guides) to avoid overweighting derivative material.

Case selection and analytic approach

Building on this mapped evidence, we selected two focal comparators for in-depth analysis using a most-similar-systems logic: the Risaralda PGS (Colombia) and the Chapingo Organic Market PGS (Mexico). A most-similar strategy holds constant as many contextual features as possible – smallholder networks, peer inspection, Spanish-language manuals, forms, et cetera – and examines how those cases organise themselves, so that lessons are more likely to transfer. For Risaralda, sharing Colombia's national setting provided additional relevance. Each case was developed into a detailed write-up (the individual case reports are found in the Appendix) and complemented by a key-informant interview with a representative of the Technological University of Pereira involved in the Risaralda PGS to clarify roles, workflow, and implementation constraints (interview procedures are documented separately).

Analysis combined framework synthesis and cross-case synthesis. The pre-specified blueprint outline functioned as an organising frame that guided where each piece of evidence should be placed. Where accounts conflicted or data were missing (for example, costed workloads), we triangulated across case reports, practitioner manuals, and the interview, and we logged unresolved items as assumptions to be checked during fieldwork. In short, the analysis moved from describing what cases report to standardising those elements into a coherent design.

Model construction, contextualisation, and validation

The synthesis step yielded a general PGS model comprised of: governance centred on a General Assembly and a Coordination Committee, with rotating peer-review teams; a membership cycle (application, baseline training where needed, first peer visit, approval, and periodic renewal on an annual or biannual cycle to be set by the General Assembly); an inspection toolkit (checklists, photo logs, corrective-action plans, and a sanction ladder); standards and indicators (core agroecological practices plus coffee-specific processing and quality metrics); rules for seal use and basic traceability proposals (labels and a shared register); and indicative cost and workload ranges with preliminary financing ideas. These components reflect what repeatedly appears to work across cases and what is minimally necessary to operate a PGS.

Subsequently, the fit of each component is assessed to Argote's context - farmer numbers and distribution, processing flow, buyer relations, and training capacity. Where the evidence offered workable variants (for example, consumer participation versus technical observers), we recommended the option with the best feasibility-credibility trade-off for an export-oriented specialty network, while noting viable alternatives. The preliminary Argote PGS model was then used for member-checking during fieldwork. Member-checking, in this application, means presenting the draft design to farmers and Argote staff to test whether procedures are realistic and burdensome in ways we did not anticipate. The resulting feedback led to targeted revisions to governance cadence, inspection frequency, and documentation requirements.

Integration and limitations

Finally, we integrated the qualitative outputs – governance design, inspection process, and participation requirements – into the quantitative work. These inputs were used to parameterise cost and workload scenarios and to inform the willingness-to-pay and awareness modules, ensuring that the quantitative analysis evaluated the operational model actually being proposed.

Nevertheless, limitations to our analysis remain. These are described under section “5.3. Research Limitations”.

3.1.2 Interviews

To gather information about possibilities and obstacles regarding a PGS implementation, semi-structured interviews were conducted in Génova, Colombia in June 2025. 19 of the 23 interviewed farmers were directly affiliated with Juan Pablo via his coffee export business, since all of them sell a share of their production this way. The four remaining interviewees were part of a different group of farmers without any direct links to Juan Pablo.

Before the interviews, the interviewees were introduced to the concept of PGS through an introduction of 15 to 20 minutes. Emphasis was put on differentiating PGS from TPC-based systems, the communal responsibility within a PGS and the current state of implementation in Colombia and other countries. Attendees were able to ask clarifying questions throughout and after the introduction. The semi-structured interviews were conducted right after the introduction by one or two researchers each. With the interviewees’ consent, the conversations were recorded and later transcribed to facilitate evaluation. The interview questions covered five relevant fields: general information about coffee farming experience, farm size and production quantities; a personal assessment of the economic situation of coffee farmers; experience and attitude towards certification systems; views on PGS; and two open questions about desired changes in the coffee industry.

In addition, two key-informant interviews were conducted to contextualize farmer perspectives. A representative of Fairtrade Netherlands provided insights on the cooperative-based scope of Fairtrade certification, cost-sharing arrangements along the chain, and price instruments (minimum price and premium). A coordinator from PGS Risaralda (Technological University of Pereira) described a functioning PGS model, including admissions, peer verification routines, training practices, and the role of university facilitation. These inputs informed the overall findings and the proposals on governance, inspection, and membership processes.

3.2. Quantitative Research

3.2.1. Customer Survey and Willingness to Pay Experiment

A survey was designed to evaluate the general consumer awareness, perceptions, and attitudes toward sustainability certifications in the coffee sector, with a particular focus on Participatory Guarantee Systems (PGS). It also aimed to explore consumer beliefs around fairness in the supply chain and trust in ethical sourcing practices. The questionnaire included a mix of Likert-scale statements and categorical questions covering certification knowledge, values associated with sustainable products, and personal purchasing behavior.

The survey was distributed digitally via Qualtrics, reaching mostly European respondents through social media and personal networks. A total of 64 valid responses were collected. The data was analyzed using descriptive statistics to understand the profile and opinions of the surveyed population, offering insights into consumer familiarity with and openness to alternative certifications like PGS.

To complement the survey findings, a discrete choice experiment was incorporated to estimate consumers' willingness to pay (WTP) for PGS-certified coffee. The experiment was structured around three hypothetical purchasing scenarios, where respondents were asked to choose between two coffee products, each defined by varying combinations of attributes, or opt out of purchasing altogether.

The attributes included: country of origin (Brazil, Colombia, Honduras, Mexico, Nicaragua), traceability level (country, region, farm), certification label (TPC, PGS, none), and price (reflecting real market ranges). These attributes were selected based on trends in the specialty coffee industry and academic literature on consumer preferences.

Responses from the experiment were used to construct a logit model to estimate the marginal utility of each attribute. The coefficients derived from the model allowed for the calculation of the WTP for the PGS label relative to no certification or a traditional third-party certification, offering a quantifiable measure of consumer preference for PGS-certified products.

3.2.2. Financial and Economic Analysis

In order to estimate whether PGS implementation is economically viable from the farmers'perspective, we conduct a simple cost-benefit analysis using a standard specialty coffee micro-farm of 2ha as a proxy. Through this exercise we model the impact of PGS implementation on financially (profit-and-loss) and economically (including secondary costs associated with implementation). The implicit research questions are a) whether such implementation can provide tangible financial benefits to coffee farmers and b) whether the economic motive offsets the entirety of the costs a farmer incurs, be it economic or otherwise.

To estimate this, we employ a simplified net present value (NPV) approach on two different scenarios of PGS implementation, with the end goal to measure the impact on the farm's net margin and establish a payback period. Assumptions are kept simple yet reasonable, and any "educated guess" required is always on the conservative side. Lastly, the model includes a sensitivity matrix for core variables. A more detailed representation of the model can be found in the Appendix, under "8.5. Financial & Economic Analysis".

4. Main Findings

4.1.PGS STRUCTURE FROM CASE STUDIES

4.1.1. Legal & Institutional Context

Latin American landscape.

Brazil has one of the most established frameworks, formally recognizing PGS since 2003 through national law and agricultural decrees. The system is legally valid for organic certification, particularly for direct sales, and is supported by public policies promoting agroecology. Ecuador endorses PGS through its 2017 Organic Law of Agrobiodiversity, which promotes participatory certification. Recognition exists at national and some provincial levels (for example, Pichincha), but PGS are not yet fully integrated into the national certification system. Peru legally adopted PGS in 2019 under Law 30983, with technical norms to guide implementation, although practical application remains limited.

Colombia's framework.

Colombia has a comprehensive legal structure for organic agriculture, anchored in national laws such as Law 101 of 1993 and Law 2046 of 2020, and in Resolution 187 of 2006, which sets organic production principles and standards. PGS was formally recognized through Resolution 464 of 2017, and subsequent policy documents reinforce its role. The National Agroecology Policy (2022-2026) frames PGS as a tool to strengthen local food systems, and the Agroecological Development Plan of Antioquia (2023-2040) includes PGS as a mechanism for recognizing agroecological production and guaranteeing quality. While there is no dedicated public funding stream for PGS, existing programs can indirectly support adoption, including FINAGRO's ICR (up to 40 percent support for small producers) and the FAIA fund (a 20 percent subsidy on inputs).

Stakeholders and coordination.

Effective implementation in Colombia would require collaboration with the Ministry of Agriculture and its departments, the Rural Development Agency (ADR), the Agricultural Institute (ICA), CORPOICA, SENA, and the Ministry of Commerce and Industry. Coordination with the National Federation of Coffee Growers (FNC) may present challenges. The FNC plays a central role in the coffee sector by providing technical assistance, promoting quality, and stabilizing prices through its internal purchasing system. Although PGS aligns with smallholder needs and participatory approaches, its coexistence with FNC-led systems may need to be negotiated[2].

[2]The contents of section 4.1.1 are primarily based on Terra Nuova (2019).

4.1.2. Governance Structure

While the core principles of PGS systems remain the same across initiatives, differing starting contexts can lead to varying models of governance structure[3].

- **Local market-centered PGS:** in many low-income or rural contexts, PGS arise around farmers' markets or community groups. Here, governance is often informal and highly participatory. Producers and consumers work together closely and forge direct relationships of trust. Decision-making tends to be consensus-based in regular meetings at the market or village level. Roles are kept simple - most or all members participate in evaluations and record-keeping is minimal.

- **Producer network or cooperative PGS:** particularly in PGS specific to commodities like coffee or cacao, producers tend to form the core of governance, sometimes with the cooperative leadership initiating the PGS. In these cases, governance is formalized with a committee or board. The scale of such a network can vary widely; in larger producer networks, governance can involve multiple levels, for example with local groups conducting the peer evaluations, and sending representatives to a central committee that ratifies certifications. While the model prioritizes producer empowerment, it could be that consumers (who may be more distant) have a lesser or no role to play in the PGS, in which case additional oversight would be needed from external parties like NGO partners or technical advisors.

- **Multi-stakeholder (institutionalized) PGS:** more advanced systems - for example, in economically more developed settings, or where PGS is legally recognized - can deliberately include an even broader range of stakeholders in the governance model. In Paraguay's organic PGS, the officially recognized evaluation committee involves representatives from farmers, consumers, NGOs, the national organic movement, the agriculture ministry, local government, a marketing firm, and technical experts. Similarly in Mexico, initiatives involve agronomist advisers in committees. The idea of the multi-stakeholder model is to boost credibility and transparency by incorporating diverse perspectives. This more encompassing structure also comes with the requirement for more clearly defined roles and committees. Regional PGS networks, like the Risaralda initiative, could be classified under this model, involving representatives and advisors from a local university and from the environmental agency of the department.

[3]The contents of section 4.1.2 are primarily based on: Terra Nuova (2019), Nelson (2012), CARDER & Universidad Tecnológica de Pereira – IIA (2018), Chacón & García (2017), García-Hoyos et al. (2019), Aguilar Gómez et al. (2019), Rikolto & PGS Coordination Committee (2018), Winkler et al. (2024), and Fundación SEDAL & Red BioVida (n.d.).

- **Sector-specific or thematic PGS:** particular sectors could be so specialized that the governance structure of a PGS is drastically different from the typical examples. A prominent example is the community seedbank PGS in Colombia, which is not market-oriented, but rather aims to guarantee seed quality for internal exchange. This can require highly specialized criteria and the involvement of technical experts. The goal of the PGS is to grant producers a license to exchange seeds or permission to use a collective seed brand, rather than a seal or certification to sell at a particular market or to make a claim on the quality of their end product. Governance may center around a farmer network and focus on technical and cultural criteria agreed upon by all farmers.

Committees and Teams.
Some countries, naturally overall the ones who recognize PGS practices and systems legally, e.g. Costa Rica, have very strict legal requirements on which bodies a PGS has to have. Other countries with less or no formal recognition, e.g. Colombia, pose less formal requirements upon the PGS system. Still, similar structures have developed in both cases; those generally include:

1. **Presidency or central administration:** several members, elected by the PGS members; responsible for administrative tasks, finances, contact with local institutions and authorities, outside representation
2. **Internal control or producer-visit group:** members are responsible for planning, executing and evaluating farm visits to ensure members' compliance with established organic production standards; in theory, consumers are supposed to be involved.
3. **Certification group**: members are responsible for handling certification process based on the results of producer visits; collect signature on document that establishes producers rights and duties. If an individual PGS seal exists, handling and supervising the utilization usually is supposed to be controlled by this group.
4. **Education group**: some PGS systems have a group responsible for education of members and potential new members, while others rely on external support from institutions (government bodies, NGOs).
5. **Market-level groups**: if the PGS spreads across several markets in different locations/at different times, most cases have additional groups for each market: select producers based on availability, composition of the local market and consumer demand.

Decision-Making.

Decision making centers on the General Assembly, where all members participate and participation is usually mandatory or strongly encouraged. The Assembly shares system-wide information, elects representatives on a 1 to 2 year cycle, and takes major decisions. In addition to assemblies, groups hold further meetings that may be mandatory or voluntary and either scheduled or convened as needed; these are used for information exchange, operational decisions, and training. Where the PGS spans several markets, producers also meet around local market days to discuss market composition and whether to admit new producers.

Latin American and Colombian Characteristics.

Having originated and proliferated in the Global South, Participatory Guarantee Systems tend to reflect traditions of grassroots organization, agroecology, and social solidarity. Many Latin American PGS began as part of broader social movements for organic agriculture and food sovereignty. As a result, PGS in Latin America often incorporate goals beyond certification - such as community education, cultural preservation, and political advocacy for farmers' rights. Governance structures tend to be inclusive and horizontal, emphasizing collective construction of norms and knowledge-sharing. The philosophy of PGS being viewed as "an exercise of citizenship" (as noted in the Colombian context) pushes governance to be democratic and locally-driven.

While variations of PGS models have arisen across Latin America, some common lessons can be drawn. The Ecovida network in southern Brazil has grown into a decentralized, regional PGS, with local groups autonomously certifying and federating into a network for mutual recognition. In Mexico, PGS emerged through local organic markets and civil society advocacy, with governance involving market committees of producers and consumers. While a 2013 organic law brought recognition and formal status to the market PGS, this was traded off against reduced flexibility and additional bureaucratic and administrative burdens. In practice, many PGS groups continued to function informally within alternative markets despite recognition. In Costa Rica and Nicaragua, PGS have been associated with organic farmers' cooperatives and local NGOs, sometimes with partial state support (but also leading to administrative demands). Peru and Bolivia have PGS tied to indigenous and peasant movements, often emphasizing traditional knowledge and autonomy in their governance. These are generally less institutional and focus on local market validation and community credibility.

In Colombia, agroecology networks have pursued PGS as a means of innovation as well as resistance against prior harsh treatment in the legislature of informal quality certification systems (Resolution 970 of 2010 which momentarily criminalized informal seed exchange). The Risaralda PGS, as well as the Red de Semillas Libres PGS for seed quality, together show that in Colombia, PGS governance can be scaled up beyond a single group to a network-of-networks, but this type of expansion may require extensive support from local institutions to be sustained. Most Colombian PGS still remain more localized, for example as farmer markets in Cali or Bogotá.

Contextual Factors Shaping Governance.
Designing a PGS governance model requires balancing formal requirements with the realities of the local context, with several key factors guiding choices.

1. **Scale and geography:** governance complexity may most clearly be dictated by the size of the producer group and the geographic distribution of producers. With all members close to each other, e.g. as part of the same community, then face-to-face assemblies and frequent peer inspection visits are feasible; in this model, the geographical closeness and trust can substitute for heavy bureaucracy. By contrast, a regional or national PGS network demands a more structured, multi-tier governance model. In large networks, representation for local groups and communication tools become vital, and travel costs and time factor in as significant costs, or limitations for participating in broader PGS initiatives.
2. **Economic development and resources:** in lower-income rural settings, farmers often have limited access to technology, formal education, and spare time for administrative tasks. Thus, PGS governance in such contexts should remain lean and user-friendly. Meetings might be scheduled around the agricultural calendar to avoid disrupting farm work. The voluntary nature of PGS should be emphasized – as seen in the Risaralda guide, participation in committees is voluntary and not an employment relationship – to manage expectations about workload and to encourage intrinsic motivation.
3. **Cultural and social capital:** existing culture within a community or group can be a major factor in shaping the potential governance model. Instilling participatory governance may be much easier in communities with a tradition of cooperation and collective work, and may take more training in more hierarchical cultures. While top-down initiation and leadership can be efficient, PGS by definition requires shared decision-making and collective verification. The governance design should integrate the roles of experts and existing leading figures in a formal capacity, while gradually empowering other members in roles of responsibility.

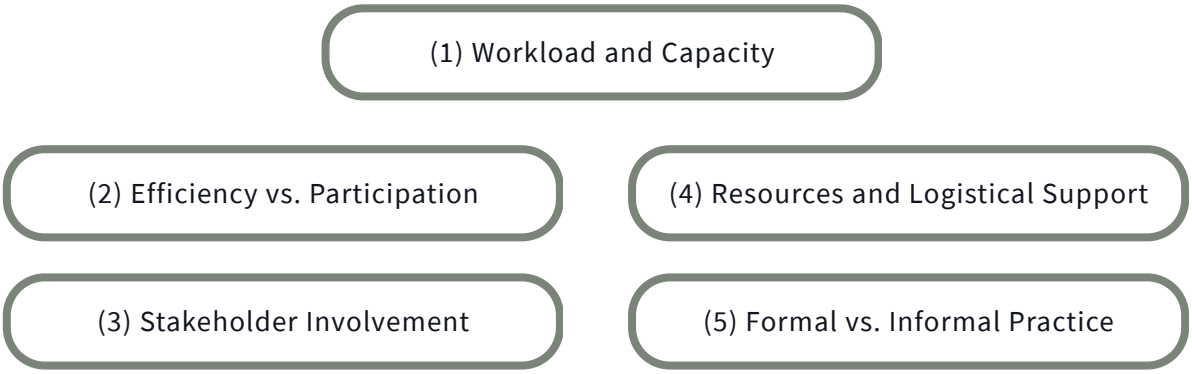
4. External requirements and objectives: governance may need to be more strictly structured and formalized if the PGS is aimed at filling certain market or regulatory expectations, or if in the future PGS recognition could be expected. Even in a more informal environment, it may hence pay off to implement a more structured governance model, in case legal requirements would need to be satisfied in the future. In addition, documentation and traceability depend on the ultimate goals and target market of the PGS. Adopting formal elements like documented standards and official lists of certified farms will be necessary if consumers are from more distant markets and would need proof of quality assurance beyond simply trust; in more localized initiatives, structure can be looser.

External Support.

External support operates at several levels. Central and regional government agencies can help with formal registration and other administrative tasks, including farm-visit protocols, membership and production data management, and basic training. NGOs often provide financial or material support and deliver training. Local public institutions - typically universities or religious centers - can supply meeting space, assist with applications for official recognition, and offer technical support such as database setup, member communications, and evaluation.

Key Challenges Overview.

PGS governance faces recurring constraints. The main issues concern workload, balancing participation with efficiency, stakeholder involvement, dependence on external support, and the gap between formal structures and day-to-day practice.



Key Challenges.

1. **Workload and capacity.** Committee membership, especially on directive boards, requires substantial unpaid time. This often leads to uneven distribution of workload across members and can reduce willingness to take on roles.
2. **Efficiency vs participation.** When knowledge about how to run the PGS is concentrated in a few experienced members, others may feel less able to contribute and become less engaged. Heavy reliance on a single leader or small group can speed decisions but leave the wider membership passive. Involving everyone in all decisions is rarely practical. Representative or tiered structures can help: elected committees handle routine certification, while major decisions go to the general assembly. Training and rotation of roles expand the pool of capable decision-makers.
3. **Stakeholder involvement.** Involving consumers and other stakeholders is widely valued but often not achieved. Many groups fall short of desired participation due to time constraints, lack of interest, or a perceived lack of relevant expertise among potential participants.
4. **Resource and logistical support.** Dependence on government agencies, NGOs, or other institutions can create vulnerabilities. When external support is withdrawn, participation has declined in some cases. Reliance on outside providers for training can also sit uneasily with the peer-learning ethos of PGS. Governance models that secure resources, either through member fees or sustained external support, tend to perform better. External facilitation can be useful at the start to provide training and materials, with farmers taking full ownership over time.
5. **Formal vs informal practice.** The existence of formal committees and procedures does not always shape daily operations. Problem solving and many decisions often occur informally among members, outside formal meetings.

These patterns should inform governance design, role distribution, training plans, and resource strategies.

4.1.3. Membership Process

The membership cycle should match the scale and geography of the PGS. Where producers are clustered, local groups can handle most tasks; where members are dispersed, a central body may coordinate selected functions. In general, a single tier is sufficient if information flows well. To ensure reliability, basic data on applicants and members should be stored in a shared database accessible to relevant stakeholders[4].

Eligibility and membership types: PGS membership is typically open to small-scale producers committed to organic or agroecological practices. Many systems require either existing compliance or a formal pledge to transition. Multi-stakeholder PGS networks may also include other actors (for example, consumers or technical advisors), but voting and core decision rights usually remain with producer-members who are directly subject to the standards and indicators.

Admissions process: Most systems formalise admissions into clear steps to screen and prepare new members while keeping the process supportive and educational:

1. **Application.** In the Risaralda PGS (Colombia), a reception team promotes and explains the PGS to non-members and assists with initial registration. At the Chapingo Organic Market (Mexico), applicants complete a detailed questionnaire on past and current practices.
2. **Initial review and farm visit**. A designated committee reviews the application and conducts a first visit. In Risaralda, the verification team informs applicants about rights and duties, prepares the standards agreement for signature, performs the initial peer visit, and forwards findings to the approbation group. In a Uruguay case, applicants submit an annual organic management plan with their request. The visit is framed as participatory and educational rather than a top-down audit; in Chapingo it is not called an “inspection” for this reason.
3. **Group decision and pledge.** Following the visit, the group decides on admission, and the applicant signs a membership agreement committing to the standards and procedures. In Risaralda, the approbation group takes the final decision or refers the applicant to training. In the Italian Campi Aperti PGS, the general assembly votes on admissions after peer review.
4. **Education and onboarding.** If not yet ready for full membership, applicants in Risaralda are referred to an education group that supports members in transition. Training is also offered to existing members, with topics selected in meetings based on expressed needs and available expertise.

[4]The contents of section 4.1.3 are primarily based on: CARDER & Universidad Tecnológica de Pereira – IIA (2018), Aguilar Gómez et al. (2019), Winkler et al. (2024), and IFOAM – Organics International (2019).

Ongoing responsibilities: Integrity relies on active participation. Members are expected to (i) comply continuously with production standards documented in an internal manual; (ii) participate in peer visits to other farms and host inspections of their own, often a set number per year on a rotating basis; (iii) attend periodic meetings such as assemblies, trainings, or certification-committee sessions; and (iv) keep basic records where required (for example, input purchases or chemical use), with results of peer visits shared transparently to enable mutual accountability.

Exits: In Risaralda, voluntary exits are recorded by the local verification team, based on information passed from the reception team. “Forced” exits for non-compliance are decided by the verification team.

Required Documentation

Key documents typically include:

- A registration form detailing production methods and motivations.
- A map of the farm layout, noting possible contamination risks.
- Records of production volumes and on-farm consumption.
- A fertilizer or input log.
- A self-assessment questionnaire on knowledge of organic practices.
- A signed membership agreement outlining obligations.

Adaptation to Context: PGS membership processes are adapted to different socio-economic and regulatory settings. Two dimensions shape most design choices:

1. Legal recognition. Where PGS has formal recognition, membership procedures may be specified by regulation. Argentina’s Agro Eco PGS, for example, operates with a municipal-level Participatory Guarantee Council that sets requirements and authorizes new entrants. By contrast, most farmer-led PGS began informally, with criteria developed gradually as needs arose rather than set upfront. In Mexican PGS markets, any stakeholder could initially join the certification committee, and only later were membership selection standards clarified.
2. Organizational scale. Scale affects membership through its impact on governance. The Chapingo Organic Market in Mexico has a 14-member committee that reviews each new producer and organizes farm visits. Larger regional or national networks, such as those in Peru, tend to use a multi-tier structure: local nuclei conduct the evaluation, and a board of the nucleus or a higher-level committee validates the results.

Key Success Factors and Challenges.

1. **Building trust:** Trust is both a foundation and an outcome of PGS. Framing peer reviews as educational rather than punitive helps applicants and members speak openly about problems so they can be addressed rather than hidden. Regular group activities, such as training workshops or simple social events after meetings, strengthen relationships and support compliance through shared norms.
2. **Inclusivity and accessibility:** Membership procedures should be attainable for farmers with limited formal education, finances, or technology. Forms and requirements should be simple, and applicants who do not yet meet standards can be admitted with a transition status and supported by training, as in the Risaralda educational committee. Fees, if any, should be low, since high costs are a common reason farmers avoid third-party certification.
3. **Shared governance:** The process should embed shared accountability by giving existing members a role in admitting new ones and enforcing rules. Many initiatives put membership decisions to the general assembly; where a committee decides, participation should be democratic or rotational so that responsibilities are not concentrated. This broadens the pool of capable decision-makers and supports collective responsibility.
4. **External support and information access:** In Risaralda, technical support from the local university is helpful but creates some dependence. Transparency and access to decisions require that documents be current and easy for members to consult. In practice, this depends on: 1) up-to-date data, 2) members having the means and interest to stay informed, and 3) functioning communication channels. Most communication occurs by email; where email is not available, phone calls or in-person meetings are needed, which raises the time cost for organisers and members.

4.1.4. Inspection Process

Inspections follow a peer review model in which farms are visited by other producers from the same territorial group. Consumers and local technicians often join to increase transparency. In practice, a small number of experienced members carry out most inspections. Because visits are conducted within tight social networks, objectivity can be challenged when farmers inspect neighbours or relatives. Inspectors are volunteers and are not paid; contributing time is considered part of participation. Most systems use a two-stage structure: a field team conducts the visit and assembles evidence, and a small ethics or certification committee (typically 3–7 members) meets later to deliberate and issue a verdict. Despite rotation guidelines, roles tend to concentrate in a minority of "core" volunteers, which creates dependence and risks burnout[5].

Inspection frequency is generally 2 to 4 times per year per producer. This usually includes one main inspection and, where needed, one to three follow-up visits for non-compliance issues or for new members. Some systems also schedule occasional random or unannounced inspections, with newly admitted members often prioritised.

Documentation is standardised to support consistency across visits. Although some PGS groups are piloting digital tools, most documentation remains paper-based due to cost and infrastructure constraints. Typical materials include:

1. Farm maps showing parcel layout and buffer zones;
2. Production logs covering inputs, practices, and yields;
3. Inspection checklists based on local criteria;
4. Follow-up or non-compliance forms;
5. Field notes or brief interview records;
6. In some cases, soil or water test results.

Common challenges include:

1. Transport cost and time, with reported travel ranging from 0.5 to 11 hours and, in extreme cases, multiple days;
2. Volunteer fatigue, since scheduling depends on inspector availability, leading to last-minute planning, uneven quality, and burnout where rotation is limited;
3. Documentation burden and uneven skills, where paperwork volume and gaps in training or literacy produce inconsistent scoring and late or incomplete files that delay committee decisions;
4. Objectivity tensions in small or close-knit communities. Participation is also affected by gendered roles and family obligations, which can limit availability, particularly for women with childcare or mobility constraints.

[5] The contents of section 4.1.4 are primarily based on: CARDER & Universidad Tecnológica de Pereira – IIA (2018), Chacón & García (2017), Aguilar Gómez et al. (2019), Terra Nuova (2019), Fundación SEDAL & Red BioVida (n.d.), IFOAM – Organics International (2019), Rikolto & PGS Coordination Committee (2018), Winkler et al. (2024), Rodríguez Silva et al. (2018), Kaufmann et al. (2023), and Hruschka et al. (2022).

4.1.5. Standards & Indicators

PGS standards define the practices that members must follow and the evidence used to verify them. Application is not fully uniform across initiatives. Interpretation and enforcement often depend on training quality and local social dynamics[6].

Most systems include a common core of requirements:

1. **Prohibited inputs**: total ban on synthetic pesticides, herbicides, soluble NPK, GMOs, and growth regulators.
2. **Seed origin**: documentation of seed sources, with preference for local, native, or organic seeds.
3. **Soil health practices**: composting with proper processing, mulching, crop rotation, and fallow periods.
4. **Water safety and buffer zones**: evidence of clean irrigation water and minimum buffer strips or live barriers where adjacent to conventional farms.
5. **Pest and disease control**: biological or mechanical methods, guided by a local list of permitted inputs.
6. **Post-harvest handling and traceability**: clean storage, separation of organic flows, and compulsory activity and sales logs.
7. **Contamination prevention**: physical or vegetative buffers and farm layout measures.
8. **Transition period:** generally a three-year de-conversion period before full organic status.

Some indicators appear frequently but are not universal. These include animal welfare provisions (for housing and feed, as noted in cases such as Risaralda and Nature & Progrès) and social criteria related to fair pricing, participatory learning, and cultural preservation reported in several Colombian manuals.

[6]The contents of section 4.1.5 are primarily based on: García-Hoyos et al. (2019), Aguilar Gómez et al. (2019), and Fundación SEDAL & Red BioVida (n.d.).

4.1.6. Certification Seal

Evidence on PGS-specific seals and labels is limited, but operational manuals and case documentation converge on two points: (i) a seal primarily functions as a visible signal of compliance within short value chains, and (ii) its use is controlled by the PGS governance body. In Risaralda, the “Certificación de Confianza” distinguishes between seals for fresh products and for processed products that use certified inputs; authorization and distribution of seals are handled by the Approval Group, and producers agree in writing to conditions of use. Comparable provisions in Vietnam describe the PGS logo as a trademarked identifier whose use is restricted to certified members and subject to coordination-committee approval. These sources emphasize that seals can also be used for promotion (e.g., on materials at points of sale), but only under committee oversight.

For implementation, several manuals recommend linking the seal to traceability. In Vietnam, a certification stamp version of the label includes the inter-group name and a farmer identification number, and committees control the issuance and accounting of labels to keep sales volumes consistent with certified production. Packaging and labeling are treated as part of system transparency, with responsibilities allocated across farmer groups, inter-groups, and the coordination committee. PGS work on seeds in Colombia likewise envisions regional and national nodes that authorize seal use on packaging, providing a pathway to scale while preserving verification at lower levels.

Recognition of PGS seals depends on the legal and institutional context. Latin American reviews note that some countries (e.g., Peru, Bolivia, Argentina) have forms of governmental recognition of PGS within domestic markets, while regional forums continue to advocate broader official recognition and cross-border acceptance. In settings without such recognition, a PGS seal mainly serves as a market signal in direct or local channels rather than a substitute for third-party certification. The Risaralda documentation also underscores that a seal can have material impact on consumer trust and market positioning, which supports its inclusion even when formal recognition is limited. Nonetheless, dedicated empirical studies on consumer response to PGS seals remain scarce in the literature reviewed[7].

[7]The contents of section 4.1.6 are primarily based on: CARDER & Universidad Tecnológica de Pereira – IIA (2018), Fundación SEDAL & Red BioVida (n.d.), Rikolto & PGS Coordination Committee (2018), García-Hoyos et al. (2019), and Aguilar Gómez et al. (2019).

4.1.7. Costs & Workload Estimates

Participatory Guarantee Systems replace costly third-party audits with peer review and collective administration - however, this does not mean they eliminate costs. While many costs associated with PGS are implicit in the form of time spent or opportunity costs of volunteering, a number of more explicit costs may also arise. Across an analysis of sources covering mostly Latin American case studies, as well as European and Asian initiatives, the most common types of costs are identified[8].

Explicit Costs.

- Administrative overhead: the larger the PGS, the higher the volume and complexity of administrative tasks. With a large enough network, this could shift from volunteer work by a few selected producers and necessitate the employment of dedicated staff to manage coordination and formalities; the Campi Aperti PGS in Italy employs two administrative staff members for 30h/week specifically for coordination, incurring a direct explicit cost.
- Inspection expenses: while the core peer review process within PGS is generally based on unpaid volunteer labor, there are associated costs for organizing and conducting these inspections. These can include transportation expenses for peer review teams and, in some models, small stipends or allowances for committee members. The Chapingo Organic Market (TOCh) in Mexico estimated the implicit cost of volunteer work for inspections at approximately $10,569 Mexican pesos per producer per year.
- Training investments: comprehensive capacity building and continuous training programs are fundamental for the effectiveness and integrity of any PGS. These programs, targeting producers, committee members, and technical teams, involve explicit costs for workshop materials, logistical arrangements, and potentially fees for external trainers.
- Technology costs: while PGS generally advocate for low-tech and accessible solutions, some initiatives, particularly as they mature, may incur technology-related expenses. For example, Campi Aperti utilizes an IT working group to manage its website and cloud data storage, implying costs for software, hardware, or skilled volunteer time. Addressing challenges in record-keeping, especially for smallholders, might necessitate investments in simplified digital tools or centralized data management systems.

[8]The contents of section 4.1.7 are primarily based on: Rodríguez Silva et al. (2018), Winkler et al. (2024), and Kaufmann et al. (2023).

The funding mechanisms for explicit costs vary across PGS models:

1. **Membership fees**: a common internal funding mechanism for PGS involves collecting annual membership fees from participating producers. Examples include Campi Aperti in Italy, which charges 15 euros per year, and some Vietnamese PGS, where fees are around €4 per year. Some models also allow for co-producer membership cards as an additional source of support.
2. **Sales-based contributions:** a more flexible and equitable approach to cost-sharing is a "voluntary contribution" based on a small percentage of monthly income generated from sales. Campi Aperti, for instance, collects 6% of market income. This model is particularly beneficial for smaller producers or those with fluctuating incomes, as it ties contributions directly to economic activity.
3. **External funding:** many PGS, especially in their nascent stages, exhibit a significant reliance on external support from various sources, including NGOs, government grants, broader development organizations, and academic institutions. The Chapingo Organic Market (TOCh) in Mexico, for example, benefits substantially from the Chapingo Autonomous University, which provides continuous technical and economic support, including direct funding for specific activities. However, this reliance on external funding can pose long-term sustainability challenges if such support is not consistently maintained or if robust internal funding mechanisms are not successfully developed.

Implicit Costs.

Implicit costs arise mainly from time spent on peer reviews, meetings, and routine administration. These opportunity costs fall on volunteers and increase with distance, group size, and the number of corrective actions required.

- Peer reviews. Time requirements are substantial. Total inspection time per producer ranges from 0.58 to 31 hours, with higher values including time for the field visit, the verdict meeting, and related administrative work. Producers typically receive 2 to 4 visits per year. Follow-up reviews to verify corrective actions are a significant share of the workload. Teams usually include 1 to 8 inspectors drawn from local groups of farmers, consumers, and other stakeholders. Inspectors are not paid; participation is voluntary. In some systems, certification fees cover part of the inspection cost (training, forms, travel), but these costs often fall on inspectors themselves. Transport time is a major burden, ranging from 0.52 to 11.5 hours and, in some cases, multiple days. Visits for newly admitted members often take up to twice as long because of unfamiliarity and additional documentation support. When non-compliance is found, each additional non-conformity can add an estimated 4 to 5 hours.

- Meetings. General assemblies involve the largest time commitments. They set internal regulations, discuss issues, review peer review reports, and sometimes address price ranges. A single assembly can last from two hours to a full working day, and frequency ranges from 2 to 12 times per year. Committee or working group meetings (for example, approbation or education committees) are more frequent but smaller and typically last about two hours per meeting.
- Administration. Common tasks include managing paperwork, scheduling peer reviews, reviewing and filing reports, updating databases, and preparing agendas for assemblies. As the PGS scales up, these tasks become more complex and time-consuming, raising the opportunity cost for those handling coordination and records.

Drivers of Costs and Workload Demands.

Costs and workload are shaped by a few core factors: the size of the network, the geographic dispersion of members, the governance structure, and the degree of legal recognition. These drivers interact, but each contributes distinct pressures.

1. Network size. As membership grows, administrative tasks and the number of inspections rise proportionally. At the same time, a larger base can, with an appropriate funding mechanism, distribute fixed tasks and shared costs more effectively.
2. Geographical dispersion. Wider spatial spread adds logistical complexity, longer travel times, and higher transport expenses. This affects both routine peer reviews and follow-up visits, increasing time demands on volunteers.
3. Organizational structure. Highly centralized models, such as the early Mexican Network of Local Organic Markets (MNLOM), can streamline decisions but often concentrate workload in a small leadership group and suppress broader participation. More horizontal, democratic structures, as promoted by IFOAM, distribute responsibilities more evenly but must manage the practical limits of volunteer time and coordination.
4. Legal recognition. Recognition can raise credibility and market acceptance, but it tends to introduce additional procedures and documentation requirements. This standardization can increase both workload and costs and may reduce the flexibility that characterizes grassroots PGS initiatives.

- Meetings. General assemblies involve the largest time commitments. They set internal regulations, discuss issues, review peer review reports, and sometimes address price ranges. A single assembly can last from two hours to a full working day, and frequency ranges from 2 to 12 times per year. Committee or working group meetings (for example, approbation or education committees) are more frequent but smaller and typically last about two hours per meeting.
- Administration. Common tasks include managing paperwork, scheduling peer reviews, reviewing and filing reports, updating databases, and preparing agendas for assemblies. As the PGS scales up, these tasks become more complex and time-consuming, raising the opportunity cost for those handling coordination and records.

Drivers of Costs and Workload Demands.

Costs and workload are shaped by a few core factors: the size of the network, the geographic dispersion of members, the governance structure, and the degree of legal recognition. These drivers interact, but each contributes distinct pressures.

1. Network size. As membership grows, administrative tasks and the number of inspections rise proportionally. At the same time, a larger base can, with an appropriate funding mechanism, distribute fixed tasks and shared costs more effectively.
2. Geographical dispersion. Wider spatial spread adds logistical complexity, longer travel times, and higher transport expenses. This affects both routine peer reviews and follow-up visits, increasing time demands on volunteers.
3. Organizational structure. Highly centralized models, such as the early Mexican Network of Local Organic Markets (MNLOM), can streamline decisions but often concentrate workload in a small leadership group and suppress broader participation. More horizontal, democratic structures, as promoted by IFOAM, distribute responsibilities more evenly but must manage the practical limits of volunteer time and coordination.
4. Legal recognition. Recognition can raise credibility and market acceptance, but it tends to introduce additional procedures and documentation requirements. This standardization can increase both workload and costs and may reduce the flexibility that characterizes grassroots PGS initiatives.

4.1.8. Implementation Roadmap

This roadmap sets out the preparatory steps and early decisions needed before formalizing a PGS. It focuses on building a shared purpose, assessing conditions, and organizing participation[9].

Step 1. Establish purpose and shared vision.
Step 2. Organize participation and decision making.
Step 3. Review current conditions.
Step 4. Decide on an operating model and core documents.
Step 5. Costs and funding model.
Step 6. Inspection protocol.
Step 7. Certificate issuance.

Step 1. Establish purpose and shared vision.

Producers first invest time to agree on why a PGS is needed and how it would improve current production and commercialization. This requires a basic shared understanding of core PGS principles. In short, the needs, incentives, and capacities of all potential stakeholders should be clear before moving ahead.

Step 2. Organize participation and decision making.

Key stakeholders, mainly producers, meet to discuss the benefits of a PGS. This should include as many stakeholders as possible to build trust and improve the chances of long-term stability. Decisions should be taken democratically so everyone can participate on equal terms. Early information exchange with existing PGS groups, NGOs, and public institutions is recommended to learn from practice and anticipate pitfalls.

Step 3. Review current conditions.

Before formalizing a PGS, a short, structured review of the operating environment is recommended to inform feasibility and design choices. The review typically combines a brief desk assessment with targeted interviews with officials, buyers, and producers. Findings are recorded in a simple table with three columns: requirement/issue, implication for the PGS, and actions needed.

[9]The contents of section 4.1.8 are primarily based on: Chacón & García (2017), Nelson (2012), Terra Nuova (2019), IFOAM – Organics International (2019), Rikolto & PGS Coordination Committee (2018), and Requelme et al. (2019).

a. Legal: Overview of what is permitted, who regulates it, and required procedures.

- Applicable national and local rules for PGS, producer organizations/cooperatives, food labeling, and claims.
- Institutional actors (ministries, accreditation bodies, sector agencies) and any registrations, notifications, or approvals.
- Conditions for using “organic” claims; where third-party certification is mandatory, lawful alternative claims (e.g., “PGS-verified practices”) and suitable sales channels.
- Buyer due-diligence and traceability expectations affecting documentation.

b. Organic production: Alignment of current practice with recognized standards and the effort needed to close gaps.

- Relevant organic standards/regulations and any equivalence pathways.
- Current farmer status, typical gaps, and realistic transition timelines.
- Priority training/support needs (e.g., record-keeping, effluent management, soil cover) and available technical assistance.

c. Commercial: Evidence of demand and practical pathways to market.

- Demand and willingness to pay in target channels; baseline awareness of PGS and information needs.
- Indicative price ranges or margins in likely outlets (direct sales, specialty buyers, public procurement).
- Bottlenecks that a PGS can address (aggregation, logistics coordination, basic traceability, quality consistency) and constraints outside scope (export licensing, customs).

The review produces a concise list of regulatory requirements, production gaps, market opportunities, and specific actions. These inputs guide subsequent decisions on standards depth, governance roles, inspection frequency, documentation needs, and initial financing.

Step 4. Decide on an operating model and core documents.

Stakeholders first need a shared understanding of how the PGS will function in their context. A minimum set of written, signed documents is required to formalize commitments and ensure consistent practice.

Required components:

1. Standards of production. Align with international organic standards. Provide a full version and a short summary that farmers can use for self-assessment. If some farmers cannot yet comply, include a clear timeline for transition.
2. Internal rules and compliance. Specify rules and norms, compliance criteria, and consequences for non-compliance.
3. Governance manual. Describe management structures, roles, duties and rights for the direction and committees, meeting procedures, and the process for issuing certificates.
4. Member pledge. A pledge drafted and agreed by farmers, with a transparent process for new members to sign.
5. Certificate and seal. Templates for certificates and, where applicable, rules for using any seal.
6. Shared database. Store all documents and decisions in an accessible database. Maintain member records (contacts, production history, farm map, peer-review results, and related documentation).

Step 5. Costs and funding model.

The objective is to keep participation costs low relative to third-party certification and to agree in advance how the PGS will be financed and how member time will be contributed. A simple annual budget and workload plan should be approved by the General Assembly (GA), covering both explicit expenses and implicit time costs.

Funding options:

- Membership fees. A modest annual fee agreed by the GA.
- Support from NGOs. Time-bound assistance for start-up items (templates, printing, basic tools, short trainings).
- Common fund. A small shared fund for essentials (transport reimbursements for inspections, seal design/printing, meeting materials).
- Government grants or programs. Opportunistic use of relevant public schemes where available.

- Time and workload expectations:
- Voluntary work targets. Clear baselines (for example, GA attendance, inspections hosted and served) set at the start of each year.
- Task distribution. Simple monitoring (e.g., a task log) to avoid overburdening a small group; periodic adjustments if imbalances persist.
- Fairness rules. Basic, proportionate measures to address persistent non-participation, consistent with the sanction ladder.

Arrangements should be documented in the internal rules and reviewed annually with the budget.

Step 6. Inspection protocol.

All members should recognize that peer reviews are essential for credibility and trust. Farm visits are also a channel for knowledge sharing and mutual learning. Early on, limited experience may require guidance from experienced producers or external support during the first review cycles.

Operating decisions to agree:

1. **Frequency**. How often farm visits will occur.
2. **Teams**. Who conducts visits and whether consumers or other stakeholders participate.
3. **Scope**. What is checked during visits and the reference standards used.
4. **Documentation**. How results are recorded, stored in the database, and made available for review and decision making.

Step 7. Certificate issuance.

Certification decisions follow the rules set in the general PGS principles (Step 3), which define how inspection results are handled, what consequences apply, and who is responsible. The certification body first verifies that the inspection was conducted and documented as required. It then reviews the findings, assesses the severity of any non-compliance, and sets corrective actions with clear deadlines when needed. Follow-up may be required due to inexperience, unclear documentation, or to confirm completion of corrective actions. The review and any unresolved non-compliance are recorded. Members must be able to appeal decisions they view as unfair or inconsistent with agreed standards, including cases where certification is not issued.

A practical sequence is:

1. Check completeness of the inspection file and confirm the process followed required steps;
2. Assess compliance and determine the outcome: issue the certificate, withhold issuance pending corrective actions, or deny certification with reasons;
3. Define corrective actions and timelines where applicable and schedule any follow-up verification;
4. Document the decision and any outstanding issues in the system;
5. Notify the applicant of the decision and the appeal option as specified in the general principles.

Challenges and Limitations of Implementation

PGS implementation faces recurring constraints. For clarity, these are grouped into five areas that mirror the main design choices: (1) purpose and participation, (2) legal and market context, (3) structure and governance, (4) costs and resourcing, and (5) inspections and certification. Each area below explains what is at stake and lists typical risks to anticipate.

1) Purpose and participation. This area is about whether stakeholders share a clear reason to form a PGS and are willing to contribute time. Without a common purpose and basic knowledge of how PGS works, participation is unstable and decisions are slow.

- Many stakeholders have limited awareness of PGS and need training and orientation.
- Establishing a shared vision is difficult when priorities differ or past conflicts exist.
- Groups may default to existing informal practices or to third-party certification models.
- Overreliance on one or two motivated individuals makes the system fragile if they step back.

2) Legal and market context. This area concerns what can be claimed under the law and what buyers expect. It determines labeling options, documentation requirements, and realistic sales channels.

- Ambiguous or absent legal recognition can restrict market access or the right to use certain labels.
- In countries where “organic” requires third-party certification, PGS claims may not be accepted for that label.
- Roles of public agencies and intermediaries are sometimes unclear, which leads to delays or duplication.
- Consumer awareness of PGS is often low, especially in formal retail, which weakens its signal value.
- Weak demand, limited willingness to pay, or poor logistics can limit scale.

3) Structure and governance. This area covers the internal rules and whether they enable broad participation without excessive paperwork. The key test is whether members understand the rules, can follow them, and see decisions as fair.

- Drafting standards, rules, and role descriptions that are both clear and complete is difficult.
- Documentation that is too complex can overwhelm smaller or less formally educated producers.
- Democratic participation is hard to ensure when a few members dominate discussion.
- Responsibilities that concentrate in a few hands lead to burnout, and succession is often not planned.
- Limited digital literacy or connectivity makes shared records and transparency harder to maintain.

4) Costs and resourcing. This area concerns predictable financing and fair distribution of work. Risks arise when contributions are unclear, volatile, or seen as unfair.

- Reliance on external funds can cause stop-start operations if support ends suddenly.
- Disputes over cost sharing are common when producer incomes differ.
- Willingness to contribute time or fees can change with prices, weather, or internal disagreements.

5) Inspections and certification. This area deals with the credibility of the process. Credibility depends on consistent, well-documented inspections and timely follow-up. In addition, weak implementation of the PGS may undermine trust in the network's seal or label.

- Inspectors who are not trained well may produce inconsistent or superficial inspections.
- Close social ties can discourage reporting of non-compliance.
- Slow or unclear corrective procedures reduce confidence in the process.
- Appeals are often viewed as biased if the process is not explicit and documented.
- Paper-based or informal tracking increases errors and makes follow-up harder.

These risks should be logged with clear implications for design choices and phased plans.

4.2.INTERVIEWS

4.2.1. Field Interviews

All of the interviewees can be considered small-size farmers with a common farm size between one and three hectares. The age range is rather wide, with the youngest farmers in their late 20s and the oldest at age 86. Their level of education is equally dispersed and ranges from only one year of schooling to university degrees. As expected, the level of education decreases with higher age. Most if not all farmers started farming as children supporting other farmowners and later on started growing coffee independently.

Regarding their views on sales, there is a consensus among virtually all farmers that members of their profession are not paid fairly generally. On a personal level, some felt treated fairly in the most recent years, while others did not view their payments as sufficient. The interviewees do not view their physical labour adequately compensated by what they are paid for their coffee. This is partially attributed to the fluctuations in world market prices. But the main object of dissatisfaction is the national coffee cooperative, which the farmers do not see valuing the effort they put into their coffee. Instead, the cooperative seems to purchase all kinds of quality levels for an equal price and no mark-ups for responsible practices or innovative methods. The farmers value the cooperation with Juan Pablo and several of them highlight his transparent practices with regards to pricing. He is also their only gateway to direct exports as none of the interviewees have experience with exporting themselves.

With regard to certification and organic practices, overall, the previous experience with third-party certification is limited among the farmers. Some interviewees participated in schemes managed by the cooperative, for example for Starbucks and Nespresso, but the financial reward and technical help seems to be limited and initial promises on behalf of the cooperative appear to not have been sustained. Despite those experiences, the farmers generally express interest in certification as a way to increase their sales prices and to differentiate themselves from other market participants. When asked about organic cultivation practices, there is a consensus for the need to protect the health of humans and nature through more careful treatment of soil and plants. While most farmers claim to follow some organic practices like composting and not using chemical fertilizers and pesticides, none of them work fully organic. The interviewees stress the need for a significant mark-up on organic coffee to compensate for the lower yields.

Moreover, the PGS concept was naturally new to all farmers interviewed. They were generally in favour of the community-based structure and the possibility to establish their own rules and principles. Virtually all see it as a beneficial opportunity for themselves and their community. All interviewees expressed their willingness to dedicate time to PGS tasks. Although some were hesitant to quantify the amount of time, the weekly average lays between two and four hours. Some stressed the need for schedules and for taking the labour-intensive harvest season into account. Most farmers highlight the importance of experienced members to hold leadership positions while others emphasize the need to have younger members in these roles for a generational handover.

All of the farmers say they are willing to exchange knowledge with peers. The views on how to hold possible non-compliers accountable differ, with some farmers advocating for strict exclusion and others arguing for less harsh measures. There is no consensus on the existence of relationships that could lead to a conflict of interest in this system. Some interviewees believe this dynamic does not exist in the community while others describe these situations as unavoidable. Nevertheless, all underline the importance of committing to the jointly established set of rules. So far, most of the farmers kept no or very rudimentary written records. Most see value in more detailed accounts, but find it hard to pinpoint which exact type of records they would find easy or hard to maintain.

Finally, the farmers commonly wish for the buyers and consumers to see the large amount of labour that goes into their coffee. This recognition should also be reflected in the prices consumers are willing to pay.

4.2.2. Fairtrade Netherlands Interview

The interview with one of the representatives of Fairtrade Netherlands revealed that the organisation had no prior knowledge of Participatory Guarantee Systems (PGS). Fairtrade operates as a top-down certification system, but it is unique in being co-owned equally by farmers and workers, who each hold 50 percent of decision-making power. Due to the high costs associated with certification, Fairtrade only works with organised producers, typically through cooperatives, while farm size may also be a condition for participation. Smallholder farmers, such as those cultivating coffee or cocoa, are eligible for certification only if they are members of an already certified cooperative. Fairtrade also certifies some individual plantations, particularly in sectors such as tea and flowers, where the benefits go directly to workers. Certification is applied across the entire supply chain, covering not only farmer cooperatives but also traders, exporters, and processors. Farmers within cooperatives pay certification fees, though these costs are partially subsidised by traders, who carry a larger share of the burden. Certification requires a long-term commitment to the supply chain, fostering trust, stability, and the conditions for sustainable development.

With regard to pricing, Fairtrade guarantees a minimum price in addition to a non-negotiable Fairtrade Premium, which is paid directly to cooperatives. An additional organic premium is also available. According to its representative, Fairtrade seeks to increase the share of the final retail price that goes directly to producers. Important disparities remain, as illustrated by the case of cocoa, where farmers receive approximately five percent of the retail price, compared to forty-two percent retained by retailers. While direct trade is not excluded and can be beneficial in some contexts, Fairtrade notes that eliminating intermediaries and scaling up production often remain unrealistic for producers due to high investment requirements.

Furthermore, cooperatives play a central role in the Fairtrade system, offering strength in numbers and greater bargaining power through collective volume. Leaders of cooperatives select their own buyers and manage the use of the Fairtrade Premium. According to the representative, typically around 30 percent of the premium is distributed directly as cash payments to farmers, while the remaining 70 percent is reinvested into productivity, education, and infrastructure through collectively approved plans. While Fairtrade standards are largely consistent across cooperatives, product-specific variations exist, including in the case of coffee. Certified cooperatives tend to exhibit stronger organisational capacity, which facilitates the tackling of structural issues such as deforestation and child labour.

4.2.3. PGS Risaralda Interview

Juan Sebastián Barrera Montealegre works at the Environmental Management Center of the Technical University of Pereira, where he has been involved in agroecological processes since 2010. His work is centered on agroecology, food sovereignty, and political advocacy to strengthen supportive policies, as well as working along the PGS Risaralda. Within the university, he coordinates projects linked to the National Network of Family Agriculture, which plays an important political role in promoting agroecology at the national level. He emphasizes that PGS is a dynamic process in which both farmers and institutions continuously learn and adapt.

The Risaralda PGS grew out of the local agroecological market created in 2010. By 2011, producers and consumers saw the need to guarantee compliance with agroecological practices, since some markets misused the “organic” label. Inspired by experiences from Cauca and Antioquia, the group introduced a one-year transition period for farmers to abandon agrochemicals and defined principles such as water protection. In 2013, the first verification document and participatory farm visits were implemented, which farmers accepted as transparent and practical.

Regarding the current structure and practices, the PGS began with eight certified producers and today includes seventytwo, covering products such as coffee, cacao, sugarcane, and seeds. Verification relies on farm visits by experienced farmer-members, supported by small producer contributions and local institutions. Certification decisions are taken collectively in monthly meetings, and training workshops are organized to strengthen practices like composting, fertilization among others. The Technical University of Pereira initially acted as technical secretary, but leadership is gradually shifting towards local actors, especially young community leaders. The PGS has also expanded beyond the university market, creating additional commercialization channels and encouraging replication in other regions.

As for the membership and governance, producers apply through a request and preliminary form, followed by farm visits and recommendations. Certified members must not use agrochemicals and are re-visited every two years to confirm their compliance with their regulations. Committees formed at the annual assembly manage training, visits, and verification. Although members do not receive monetary compensation, participation provides knowledge exchange, recognition, and access to new markets.

Moreover, while recognized under Colombia’s agroecology policy (Decree 331), PGS is not yet fully institutionalized. Efforts focus on achieving public procurement agreements favoring family agriculture and expanding differential markets. Looking forward, community leaders are optimistic about new opportunities, including exports, with carbon-neutral coffee from El Cairo serving as a pioneering case.

4.3. Customer Survey and Willingness to Pay Experiment

The customer survey employed a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." In this scale, each response corresponds to a numerical value from 1 to 5, with higher scores indicating stronger agreement. Average scores reported throughout this section therefore reflect the central tendency of responses, where values above 3 indicate overall agreement and values below 3 indicate disagreement.

The survey was completed by approximately 65 respondents. Of these, 52.5% were male and 47.5% female, with the majority aged between 25 and 34 years. Most held a university degree and/or postgraduate qualification. The customer survey was segmented into six thematic blocks, each aiming to capture a specific dimension of consumer awareness and attitudes. The following analysis outlines the purpose of each section, cites the survey statements, interprets the aggregated responses, and identifies common trends.

Awareness of Certification Systems

This block assessed respondents' general awareness of sustainability certification labels for coffee and the extent to which such labels influence purchasing behavior.

The first statement asked: *"I recognize sustainability certification labels such as Fair Trade or Organic."* Here, around 80% of respondents selected “Somewhat Agree” or “Strongly Agree,” yielding an average score of 3.7. This indicates a relatively high level of familiarity with mainstream certification labels.

The second statement was: *"Sustainability certification labels influence my purchasing decisions."* Although many respondents acknowledged some influence, the average score of 3.2 was notably lower than their general awareness.

Consumers demonstrate recognition of mainstream sustainability certifications, but this does not necessarily translate into their purchasing behavior. This may be a reflection of different aspects such as market saturation, skepticism about labels’ credibility, or the dominance of other purchasing criteria such as price, taste, or convenience.

Familiarity and Perception of PGS

This section explored the extent to which consumers are familiar with PGS and whether they perceive it as credible.

The first statement was: "I am familiar with Participatory Guarantee Systems (PGS)." Here, the majority of respondents reported little to no prior knowledge, with many selecting “Strongly Disagree” or “Neither Agree nor Disagree.” This highlights a significant awareness gap compared to mainstream labels.

The second statement was: "I find PGS credible as a certification system." When introduced to the concept, most respondents leaned toward “Somewhat Agree,” followed by neutrality. This suggests that while respondents are open to the idea of PGS, their conviction remains limited without more information.

Therefore, although awareness of PGS is very low, the concept is well-received once explained, pointing to a strong potential for market acceptance and adoption if awareness campaigns are targeted and effectively implemented.

Values and Purchase Drivers

The following questions evaluated the role of social and environmental values in shaping consumer preferences.

The first statement was: *"I prefer to buy products that support smallholder farmers and local communities."* Respondents showed very strong agreement with this statement. The average Likert score was one of the highest in the survey at 4.37, with around 85% of respondents choosing “Somewhat Agree” or “Strongly Agree.” This indicates strong support for smallholder farmers and local communities as a driver of consumer choice.

The second statement was: *"I care about the environmental and social impact of the coffee I consume."* Here, respondents again demonstrated a high level of agreement, with most clustering around “Strongly Agree.” The average score was 3.98, showing that environmental and social concerns are firmly present in consumer decision-making.

Hence, there is a strong normative dimension in consumer preferences. Respondents care deeply about the broader impact of their consumption and express support for fairness and sustainability. These values provide a strategic anchor for PGS positioning.

T***rust in Certification Systems***

This section assessed consumer trust in certification systems, both mainstream and alternative.

The first statement was: "I trust certification systems managed mainly by local producers and consumer networks." The average score was 3.66. Most respondents leaned toward “Somewhat Agree,” while a notable portion remained neutral. This indicates a degree of openness to local, community-based models, though without strong conviction.

The second statement was: "I trust mainstream certification systems to be transparent and impactful." The responses were more mixed. The average score was 3.37, with 43% selecting “Somewhat Agree,” 17% selecting “Somewhat Disagree,” and many choosing a neutral position. Compared to local systems, trust in mainstream models was slightly lower, with more evidence of skepticism and hesitation.

Summing up, consumers displayed greater confidence in local certification systems than in mainstream ones, but overall trust levels remained moderate, with neutrality common in both cases. This reflects both the opportunity for PGS to present itself as a more authentic and community-driven alternative and the broader challenge faced by all certification systems.

Openness to PGS

The fifth block of statements explored the consumers' willingness to try coffee certified under new or alternative systems and their readiness to pay a premium for PGS-certified products.

The first statement was: *"I am open to trying coffee with a new or lesser-known certification label."* Responses were highly positive, with an average score of 4.3. Almost half of the respondents (46%) selected "Strongly Agree," and an additional 42.8% chose "Somewhat Agree." This was among the highest-scoring items in the survey, reflecting particularly strong receptivity to alternatives to mainstream certifications.

The second statement was: *"I am willing to pay more for coffee certified by a system like PGS."* While still positive, responses here were more cautious. The average score was 3.6, with about half of respondents selecting "Somewhat Agree," but the rest distributed more evenly across the other categories. Compared to the very high willingness to try new certifications, the willingness to pay more showed a noticeable drop, underscoring the importance of price considerations.

Respondents are very open to experimenting with new and lesser-known certifications such as PGS, showing one of the highest levels of agreement across all blocks. However, willingness to pay more is significantly less robust, highlighting affordability as a key constraint. For PGS adoption, this suggests that receptivity is strong, but economic accessibility must remain central to strategy.

Fair Pricing and Producer Support

This final block of statements tried to understand consumers' perceptions regarding fair compensation for coffee producers and the willingness to support certification systems that ensure equitable pricing and fair pay to farmers.

The first statement was: "Small-scale farmers currently do not receive a sufficient share of the final price of coffee products." Respondents strongly agreed with this sentiment, yielding an average score of 4.49. Over half of respondents (59%) selected "Strongly Agree," 32% chose "Somewhat Agree," and only 9% remained neutral. This demonstrates that the perception of farmer underpayment is widely shared and rarely contested among participants.

The second statement was: "I am more likely to support certification systems that ensure farmers receive a fairer portion of the coffee's retail price." This was the most strongly endorsed statement across the entire survey, with an average score of 4.6. A clear majority of 65% selected “Strongly Agree,” 30% chose “Somewhat Agree,” and only 5% remained neutral. This overwhelming support underscores fairness and equitable distribution as central priorities for consumers.

This last block’s results show that respondents believe small farmers do not receive fair compensation, and this was the strongest finding in the survey, both in terms of distribution and average scores. With 4.49 and 4.6 as the highest means across all blocks, fairness and ethical sourcing clearly resonate most with consumers. For PGS, this provides a decisive opportunity to position itself as a system that directly addresses structural inequalities in global coffee value chains.

Taken altogether, the results from the customer survey reveal several key insights. Consumers are generally aware of mainstream certifications, but awareness does not consistently translate into purchasing behavior. PGS itself is largely unfamiliar but is considered credible once explained, suggesting strong potential for broader acceptance if supported by awareness campaigns. Social and environmental values strongly influence purchasing preferences, with fairness and sustainability serving as core motivations. While trust in alternative certification systems such as PGS is moderate, skepticism toward mainstream systems provides an opportunity for PGS to position itself as a more transparent and equitable alternative. Consumers are open to trying new certifications and, to some extent, willing to pay more for them, although price sensitivity persists. Above all, there is overwhelming support for fair compensation of smallholder farmers, highlighting a clear alignment between consumer values and PGS’s mission.

Willingness to Pay Experiment

A total of 43 responses were recorded for this choice experiment. The estimated WTP from consumers for coffee with a PGS label over coffee without a label is positive, although the results are not statistically significant at the 10% level. Even if not conclusive, this indicates that specialty coffee consumers assign a positive value to options with a PGS label over options without a label, all other factors kept constant.

4.4. PROPOSAL FOR ARGOTE'S PGS MODEL

4.4.1. Legal & Institutional Context

Colombia has a relatively enabling legal framework for Participatory Guarantee Systems. PGS are recognised within national policy instruments such as Resolution 464/2017 on Family, Community and Rural Agriculture (ACFC) and the National Agroecology Policy 2022–2026, adopted by MADR via Resolution 331/2024 (MADR, 2017; MADR, 2024a). The technical annex to the policy explicitly references Sistemas Participativos de Garantías (SPG) within its lines of action and proposes a national program to foster and recognise SPG and trust seals (MADR, 2024b). The broader context for organic agriculture is shaped by Law 101/1993, Law 2046/2020 on Local Public Food Procurement, and Resolution 187/2006, which together outline principles, standards, and institutional responsibilities; Resolution 187/2006 remains the operative framework for use of the "orgánico/organic" claim through accredited conformity assessment bodies (Congreso de la República, 1993, 2020; MADR, 2006).

While legal recognition exists, direct public funding for PGS remains limited, and most support seems to come from targeted programmes or project-based interventions; in practice, groups should plan for mixed resourcing (member fees, buyer co-funding, municipal/NGO projects) rather than a dedicated PGS budget line. There might still be additional funding sources we were not able to identify during the research process; local knowledge of stakeholders will therefore be helpful in this regard.

In short, PGS are policy-recognized in the agroecology legislation, but legal use of the "orgánico/organic" label in most commercial channels depends on certification under Resolution 187/2006; PGS alone does not confer that right (MADR, 2006). In practice, this implies that Argote Specialty Coffee may want to position PGS as an internal tool of traceability and a stepping-stone, using descriptive claims such as "PGS-verified agroecological practices" domestically where appropriate, and pursuing accredited organic certification when "organic" labelling or premium export access is required (IFOAM – Organics International, 2016).

Several public institutions are relevant for a PGS in Génova:

- The Ministry of Agriculture and Rural Development (MADR) sets policies for agroecological production (MADR, 2017; 2024a; 2024b).
- The Agencia de Desarrollo Rural (ADR) provides commercialization support to producer organizations, potentially useful for market access planning and linking short supply chains (ADR, n.d.).
- The Instituto Colombiano Agropecuario (ICA) implements the organic regulation and sanitary controls, and may be key for clarifying what claims and documentation are permissible when a group uses PGS domestically alongside organic practices (ICA, n.d.; MADR, 2006).
- AGROSAVIA (formerly CORPOICA) provides public agricultural R&D and knowledge packages, including on organic inputs (AGROSAVIA, 2018).
- The Servicio Nacional de Aprendizaje (SENA) can support training for inspections, record-keeping, and basic traceability practices within PGS (SENA, n.d.).
- The Federación Nacional de Cafeteros (FNC) governs key elements of coffee quality, internal purchasing, and export procedures, making early coordination important when PGS-organized groups sell to export markets (FNC, n.d.).

It will be important to make contact with these entities early in the process of establishing a PGS to clarify expectations and identify areas where the PGS can complement existing programmes rather than duplicate efforts. Additionally, existing local structures (regional or departmental) around sustainable agriculture should be considered and contacted to benefit from possible cooperation.

We recommend positioning the PGS as a locally valid quality assurance and traceability mechanism that is compatible with Colombian recognition of PGS but primarily oriented towards the group's current commercial relationships. These include both export buyers and domestic outlets. The current efforts are primarily focused on exports, especially given the role of FNC in export authorisation and quality control; achieving higher sales prices presently appears more feasible in external markets (FNC, n.d.). Nevertheless, in line with the concept of PGS as a tool to secure access to agroecological produce locally, sales to local wholesalers or roasters should also be considered - even if the specialty coffee market in-country remains relatively small. Practical note: where the term "orgánico/organic" is legally restricted, the group can adopt alternative labelling strategies consistent with the IFOAM Family of Standards (e.g., "PGS-verified agroecological practices") and use an internally recognised seal, while documenting peer-inspection minutes, corrective actions, and member lists to meet buyer due-diligence expectations (IFOAM – Organics International, 2016).

Over time, if “organic” labelling or specific foreign-market access is required, the records, routines, and internal control built through PGS can reduce the cost and complexity of obtaining accredited certification under the national regime (MADR, 2006).

Public procurement under Law 2046/2020 may offer additional domestic opportunities for short food circuits and local market access when specifications value proximity, agroecology, and traceability; PGS documentation can support such due-diligence narratives even if it does not substitute for statutory “orgánico” certification (Congreso de la República, 2020; MADR, 2024b). For export-facing relationships, the group should treat PGS as the governance and improvement backbone while complying with FNC export procedures and any buyer-specified verification requirements (FNC, n.d.). This approach minimises legal risk, leverages existing institutions, and keeps transaction costs manageable while the group builds credibility and market relationships.

4.4.2. Governance Structure

The governance model for the PGS should reflect both the size of the network – currently around 20 smallholder organic coffee producers – and the PGS principles of collective responsibility, inclusiveness, transparency, and rotation of leadership. It is subject to change based on the changing views and needs of the members. Emphasis needs to be put on the differing workloads for farmers in coffee cultivation across the year, with the harvest period from June to August being the most work-intensive. PGS schedules should avoid peak harvest months and concentrate inspections and meetings in the less busy periods. The following proposed structure should be viewed as an example based on existing PGS, adapted as closely as possible to the context in which Argote Specialty Coffee operates.

General Assembly (GA). The GA, in which all members are considered equally voiced participants, serves as the highest decision-making body, meeting at least twice a year (e.g. one planning/training meeting before inspections; one review/decision meeting after inspections). The GA will have authority over standard-setting, admission of new members, election of committee members, endorsement of certification recommendations, and any changes to the seal/label policy. Consensus decision-making is recommended for matters such as standard revisions and the PGS Charter; majority voting may be sufficient for elections and other second-level decisions. Mandatory attendance levels need to be agreed on communally, but participation in GA meetings is recommended to be the norm; a simple quorum rule (e.g., 60–70% of members) should be defined. Minutes should be taken and shared with all members. If needed, extraordinary GA meetings can be called to address urgent non-compliance or disputes.

Coordination Committee. The Coordination Committee serves as the central body overseeing the PGS process on a more week-to-week basis. Given the size of the network, the committee may consist of around five members, including the PGS Coordinator, farmer representatives, and optionally one external advisor without voting rights. The Coordinator – potentially Juan Pablo, subject to confirmation and vote – acts as a facilitator, not a unilateral decision-maker. Farmer representatives should be elected by peers; to support inclusion, at least one or two seats should be reserved for female representatives. Where possible, representatives should come from different families/areas. The committee is responsible for organising the annual/biannual certification cycle, preparing or updating documents (PGS Charter, inspection forms, corrective-action templates), scheduling peer inspections, reviewing inspection reports, issuing written recommendations on each farm's status, and preparing items and proposals to be presented at the GA, where decisions can be made together. If GA meetings are difficult to organise frequently enough, the committee may take interim decisions, provided these are documented and presented for ratification at the next GA. An optional, non-voting external advisor (e.g., from a local university or extension service) can provide technical input and training support.

Peer Review Teams. All farmers should participate in the PGS by taking turns in peer inspection. Peer Review Teams will be composed of two to four farmers, with pairings rotated each year to avoid repeatedly inspecting the same people. Ideally, each inspection team will include at least one committee member and one non-committee member. No one should inspect their own farm or a close relative's farm, and obvious conflicts of interest should be avoided. The purpose of visits is both verification and knowledge exchange: the tone should be non-adversarial, with space to discuss practices, identify gaps, and agree on practical improvements. Each farm should be visited at least once per year; where corrective actions are required, a short follow-up visit (or photo/record check) should be scheduled. To respect workloads, the inspection calendar should be agreed in advance, avoiding June–August and clustering visits geographically to reduce travel time.

Documentation and data. Maintaining basic documentation is necessary for transparency and traceability, but given the small size of the network this can be kept simple:

- **PGS Charter:** a document outlining purpose, principles, governance, decision rules (consensus/majority), and the production standards applied. It should be drafted in a workshop and signed by members.
- **Farm record:** a file for each member (farm name, size, key practices, maps/plots if available) that stores inspection checklists, photos (optional), corrective-action plans, and follow-up notes.

- **Inspection checklist:** a brief form covering key practices (inputs, soil and water management, buffer zones, storage/handling) and a comments section for observations and advice.
- **Committee reports:** an annual summary listing farms recommended for certification, those pending corrective actions, and general observations. The report should be shared at the GA and archived.

A simple “data manager” role can be designated (one person within or attached to the committee) to maintain these records and ensure all members can access them on request. Records can be kept in a shared physical binder and/or digital folder.

Leadership and safeguards. An observed weakness in some PGS initiatives is concentration of knowledge/power. It makes sense for an experienced member (e.g., Juan Pablo) to serve as Coordinator initially, but the role should be framed as facilitative and reviewed periodically through open elections. Capacity-building should aim to distribute organisational skills and inspection competence, so that relevant knowledge does not remain concentrated. Simple safeguards, like rotation of roles, clear minutes, open access to records, and recusal rules for inspections, help maintain trust and credibility.

Since the current network is rather small, it seems questionable whether additional committees are viable. If members express the interest in more participation, logical tasks would entail one person responsible for managing data to keep all processes as transparent as possible and a team/committee in charge of educational measures and training. Since the field research showed a common interest in organic practices but most farmers are still in the transition to fully organic production standards, external educational support could facilitate this transition. With at least one large meeting space at the Argote farm available, the infrastructure for meetings is not a concern in our proposal.

4.4.3. Membership Process

Eligibility for membership should be limited to smallholder coffee producers in and around Génova who commit to following the group’s standards and participating actively in governance and inspection activities. “Smallholder” should be defined in measurable terms, such as a maximum number of hectares or coffee trees. “Local region” may be defined by municipal boundaries or by a maximum travel time from Génova to keep inspections practical. “Active participation” should be quantified, for example: attending at least two General Assembly (GA) meetings per year, hosting one peer visit per year, and joining a minimum number of inspection activities as a reviewer. These thresholds can be set by the GA and reviewed annually.

Application process. The application process can include four stages, with simple records kept at each step and timelines agreed by the Coordination Committee so that decisions are made without long delays and outside peak harvest months.

1. **Orientation.** The applicant attends an introduction meeting or is visited by committee members to learn about the PGS, expectations, and time commitments, and to express interest. This meeting also serves as an early step in social integration.
2. **Initial farm visit.** A peer review team conducts a preliminary inspection using the checklist. The emphasis at this stage is learning, clarity on practices, and discussion of any gaps. Perfect compliance is not expected; the team explains standards and shares practical advice.
3. **Committee recommendation.** The Coordination Committee reviews the inspection notes and proposes admission, rejection, or a transitional membership status, including any improvement actions. The recommendation is documented and shared with the applicant.
4. **GA decision and pledge.** The GA makes the final decision by the agreed rule (consensus for standards and charter updates, majority voting for admissions). Accepted members sign a short membership agreement pledging adherence to standards, peer inspections, meeting attendance, and timely disclosure of any compliance issues.

Transitional membership and support. Applicants who do not fully meet the standards but show commitment may be admitted on a transitional basis, with a defined improvement plan and a clear timeline. A mentor from among experienced members should be assigned, and the applicant should be invited to relevant trainings. Where a separate education team is not feasible, the Coordination Committee can coordinate mentoring and basic training with support from external advisors if available.

Documentation. The following documents should be maintained in a simple, accessible file for each applicant and member: the application form, the initial inspection checklist and notes, the committee recommendation, the GA decision, the signed membership agreement, and any improvement plans with follow-up notes. Records should be open to members on request.

Accountability and conflict resolution. A gradual sanction ladder should be adopted and communicated clearly to all members. First instances of non-compliance can be treated as learning opportunities, with a private conversation and a follow-up visit where needed. Repeated non-compliance should trigger a written warning and a time-bound corrective action plan. Serious cases, such as use of forbidden inputs or refusal to participate in inspections, should be brought to the GA. The GA may vote on temporary suspension or expulsion. A simple appeals option can be provided by placing the case on the agenda of the next GA.

Re-entry and changes in status. Farmers who are suspended or who withdraw may reapply. Re-entry should follow the same process as new applications, with attention to the causes of the earlier exit and evidence of corrective action. Transitional status can be used again if appropriate.

Scheduling and workload. To respect seasonal workloads, orientation, initial visits, and GA decisions should be scheduled outside the main harvest period. The annual admissions window can be planned before inspections begin so that new members can participate fully in the cycle.

Scalability. The above process should work well for the current size of the group. If membership grows, or if farms are spread over a wider area, the group can consider a two-tier approach, similar to the examples of regional PGS discussed in section 5.1.2, where preliminary reviews are conducted in smaller local cells and final approvals remain with the central Coordination Committee and GA. A representative from each cell can sit on the committee to keep decisions coherent.

4.4.4. Inspection Process

The inspection process will follow an annual cycle unless the GA agrees otherwise. A yearly full inspection per farm is recommended for a group of this size. Timing should avoid the June–August harvest and align with the coffee cycle; two workable windows are immediately after the main harvest or early wet season. Where a farm is in transition or has open corrective actions, a short mid-year check-in can be scheduled.

Format and procedure. Farm visits, while based on the inspection checklist, should also involve open discussion. The tone is supportive and oriented to learning, not punitive, as the idea of the visit is to essentially feel like a peer review session. At the end of the visit, the team records a clear status (compliant; compliant with minor issues; not compliant) and lists any corrective actions with deadlines and a responsible person. Notes and, where useful, photos are added to the farm record.

Review and decisions. Inspection results are submitted to the Coordination Committee, which checks completeness and tracks corrective actions. The committee then prepares written certification recommendations for the GA in line with the roles defined above. An appeals option should be available to any member who contests an inspection result or certification decision; appeals are placed on the next GA agenda.

Non-conformities. Minor issues (for example, documentation gaps or correctable practice lapses) receive a defined correction period and, if needed, a brief follow-up. Serious breaches (for example, use of prohibited inputs, refusal to allow inspection, or repeated failure to implement actions) are referred to the GA for immediate review, consistent with the sanction ladder described in the membership section.

Scheduling and logistics. Inspections should be planned on a calendar agreed in advance, clustered geographically to reduce travel time, and supported with shared transport where needed. This keeps the workload manageable and participation high while linking verification directly to practical improvement.

4.4.5. Standards & Indicators

The PGS will adopt the organic production standards already in use by Argote Specialty Coffee, aligned with the Colombian national and international principles for organic production. Beyond organic production, the PGS can bring value through a set of socioeconomic standards that reflect the group's governance aims as well as feedback from the field interviews. These should stay few and practical, with clear indicators and simple record-keeping:

- Participation and governance. Minimum attendance at GA meetings, participation in peer reviews, rotation of roles, and basic conflict-of-interest rules for inspections. Indicators can include GA attendance rate, number of inspections served per member, and adherence to rotation/recusal.
- Inclusion and gender/youth. A simple commitment to inclusion in leadership and training access, reflecting expressed interest in gender equity and progressive participation. Indicators may include at least one woman in the committee, share of women or younger members in trainings, and documented steps to reduce barriers to participation (for example, scheduling, child-care considerations at meetings where feasible).
- Training and continuous improvement. Participation in at least one skills session per year (for example, soil health, record-keeping, or processing), and timely closure of corrective actions. Indicators can track training attendance and the share of corrective actions completed by the agreed deadline.
- Traceability and transparency. Lot-level or batch records for processed coffee, basic input and practice logs, and a short public-facing PGS summary (for example, a one-page sheet or QR link) that explains what the PGS verifies. Indicators include completeness of farm records and availability of a current PGS summary for buyers.

- **Labor and safety.** No child labor in hazardous tasks, fair treatment of hired workers consistent with local norms, and basic safety in processing. Indicators rely on checklist confirmation and, where applicable, simple payroll or task logs.

In practice, the GA should approve an initial, short list of indicators from the above areas and review them annually. The committee can maintain a one-page summary of indicators as well as a fuller technical file, updating them as needed.

4.4.6. Certification Seal

The group will design a certification seal to be used on-farm, on packaging, and in promotional materials, subject to the limitations of Colombian law. The seal will signal compliance with the PGS standards and is a crucial part of the PGS economic benefits, a key point recognized during interviews and informal conversations in Génova. Rules must specify the scope of use, conditions for withdrawal, and a procedure for tracing certified lots.

If national regulations restrict the use of the term “orgánico,” the group should use alternative wording such as “PGS-verified” or other terms agreed upon internally, ensuring that buyers clearly understand the seal’s meaning. The wording should also take into consideration the demands from buyers, considering language and key terms.

4.4.7. Economic Feasibility

Section 5.1.7 provided an overview of relevant costs and workload associated with Participatory Guarantee Systems, both explicit and implicit. For Argote’s context, the main burdens stemming from PGS are modest and largely time-based rather than cash-intensive, with the most relevant items stemming from: inspections and follow-ups; transportation; meetings and basic administration; materials; and training and educational sessions. Because many members are still consolidating fully organic practices, time demands are likely to be slightly higher in year one (more corrective actions and mentoring), then stabilize as routines and records are in place. Cash outlays remain small and can be covered through modest membership fees and in-kind contributions, while external support may be helpful but is not assumed as a core funding stream. This overview links directly to the following analysis of economic feasibility.

The adoption of an alternative certification scheme like PGS will only be successful in the long term if the producers' financial viability is assured. To explore the implications for Colombian farmers active in the specialty coffee market, we model the impact on yearly earnings. The first finding is that PGS adoption has the potential to increase the producers' net margin, even with the stricter quality control and higher labor intensity associated with such a transition. Furthermore, we incorporate the implicit time costs the average farmer would incur and estimate the payback period of the upfront investment. The payback period is relatively short (approximately 5 years), and the farmers are less prone to price fluctuations.

Baseline assumptions

For our baseline, we consider a standard specialty coffee farm sized 2 ha, and assume conservative values for trees / ha and yield / ha. The entirety of production is exported, and we assume an export price at €5 / kg of dried, unroasted beans[10]. Farmers' costs are primarily labor and fertilizer (which are treated as variable to production) and secondarily maintenance, utilities, taxes and rest (which are treated as fixed for this exercise)[11]. For our benchmark calculations of time costs, we use the minimum wage converted in euros. It is also assumed that the farmer is financing all related costs with own funds, without taking on significant debt. To avoid unnecessary complexity and in line with previous assumptions, we do not assume a discount rate; the adoption materializes within one year, and the impact of inflation is reflected through the sensitivity matrix and the rest of the variables.

Key findings

We develop two different scenarios, one associated with a volume increase (the farmer is able to export more of its production and is incentivized to do so), and another is followed with a price premium increase (because of higher value perception in European markets). The key trade-off the farmer faces is between the increased volume or price premium and lower fertilizer costs against the initial investment of converting their crops to fully organic and the time (participation) costs incurred. Converting to PGS also results in a lower fruit-to-bean conversion as quality standards increase, which is assumed around 4-5%, and an increase in labor intensity.

In either scenario, once a PGS has been implemented, the representative farmer sees their profit margin increasing up to 6 p.p. The main driver that allows for better financial performance is the substantial decrease in fertilizers costs following the initial investment in organic production, which is recouped in the following 4 to 6 years. In the absence of a premium, the farmers' revenue might even be lower than in the baseline, due to the fruit-to-bean conversion lowering volume sold. Moreover, time costs are not large enough to affect the decision of joining a PGS, which is predominantly based on the upfront investment costs.

[10]Exporting usually reflects above 95% of a specialty farmer's revenue, even including secondary activity such as cascara tea or the internal market. [11]For this exercise we have assumed 80% chemical, 20% organic fertilizer on the baseline, with PGS resulting in 100% organic production.

As a direct implication, the impact on farmers who have already shifted a significant portion of their production into organic may not benefit as much or even see their margins decreased, if PGS participation is not accompanied either by a substantial addressable market growth or a higher premium. In either scenario, PGS implementation fortifies the farmer against price fluctuations and/or exogenous increases of labor costs. During the payback period, however, the farmer is significantly exposed to price changes if the benefits of PGS have not been priced in yet. It would therefore make sense for a community to gradually adopt PGS practices related to the environmental aspect, to avoid systematic exposure.

Robustness and sensitivity

The model is highly sensitive to a number of assumptions. A key concern is with regards to the fruit-to-bean conversion. Our calculation purposefully assumes the impact from a higher quality standard is sizeable, reaching as low as 12% of collected fruit mass successfully exported. We make no explicit assumptions about productivity gains or losses from fully switching to organic production.

Overall, the results can be interpreted as a lower bound, at least when volume reduction occurs. The results would also vary greatly depending on the variable fertilizer costs, as well as the mix assumed on the baseline scenario. It may as well be the case that for some farmers PGS adoption is not economically justifiable if it isn't associated with a price premium increase, since the savings from organic fertilizer are not enough to absorb the increased labor costs.

Lastly, potential financing costs also complicate the decision from the individual farmer's side, since the payback period would be extended. We remain cautiously optimistic on capturing the impact of time costs, labor intensity and export price changes well.

Concluding remarks

PGS adoption may provide tangible economic benefits to specialty coffee farmers and protect them from market fluctuations in the medium term. The benefits are substantial when associated with a reduction of operating expenses (fertilizers), even in lieu of more intense quality controls and increased labor intensity. Addressing a larger or more sophisticated market that allows for higher volumes exported and/or price premiums also results in financial benefits for farmers. Careful implementation, community support (funding) and market research are key pillars that may allow the transition of specialty production to more sustainable ways of working, and leave a higher value share to micro-farmers.

4.4.8. Implementation Roadmap

PGS implementation may follow six phases:

Situational Analysis (Month 0–1)

Confirm actors, incentives, logistical constraints, and buyer expectations; map relevant legal and institutional contacts in Nariño and beyond.

Shared Vision & Governance (Month 1–2)

Convene all interested farmers; agree on the purpose and benefits; elect an interim committee; set meeting dates for the next year.

Document Development (Month 2–4)

Draft and approve the PGS Charter, full standards, one-page summary, inspection checklist, sanctions policy, pledge, seal rules, and appeals process.

Capacity Building & Onboarding (Month 4–6)

Train peer reviewers; introduce the PGS to new applicants; sign pledges; collect farm profiles and maps.

First Inspection Cycle (Month 6–8)

Conduct baseline inspections; record corrective actions; committee validates results; GA issues certificates (full or provisional).

Consolidation (Month 8–12)

Follow up on corrective actions; conduct thematic workshop; consider external advisor visits; prepare an annual report; hold elections for the next committee.

5. Discussion

5.1 SYNTHESIS OF THE MAIN FINDINGS

xThis report's findings suggest that PGS offer a credible and context-sensitive alternative to conventional TPC, particularly for smallholder coffee producers. Shared attributes from use cases on PGS such as a strong stakeholder participation, transparency, and collective responsibility contribute to a successful implementation and governance of PGS.

Interviews on the ground in Colombia reflected this understanding. Interviewees recognized the need for trustworthy relationships within the community for a PGS certification to work successfully. They also showed openness to volunteer personal time for the labor required to maintain a PGS, including inspections of other farms.

A model for a PGS in Génova was proposed considering interview results, existing legislation in Colombia, as well as best practices and structure from studied use cases. This model serves as a roadmap for coffee producers from Génova to establish the governance structure, membership process, inspection process, standards and certification seal of their PGS.

The economic analysis for this model indicates that establishing a PGS should lead to a reduction of costs for coffee producers and increase in the quality of their produce. A lower fruit-to-bean ratio and decrease of fertilizer use drives these savings. A premium for PGS coffee may bring in additional benefits to producers.

The consumer survey analysis demonstrates that once introduced to PGS, consumers have a positive attitude to products with this label while holding some skepticism towards mainstream labels. This reflects a position for PGS products to fill if consumer awareness of PGS were to increase. A separate WTP experiment done in tandem suggests consumers are willing to pay a premium for PGS coffee. Results from this experiment are not statistically significant but do suggest that producers may perceive a premium by adopting a PGS certification.

5.2. IMPLICATIONS

5.2.1. General Implications

Positioning PGS in Global Value Chains

The analysis of case studies makes it clear that though Participatory Guarantee Systems (PGS) engage vast numbers of smallholder farmers globally, their reach remains largely in localized, short value chains rather than mainstream global trade. A clear trade-off exists between the local adaptability that gives PGS its strength and the global recognition required for export. Global value chains traditionally rely on uniform third-party standards, so PGS products often face hurdles entering distant markets without additional validation, a fact underscored by producers who maintain dual certifications.

The findings suggest that PGS works best in high-value, relationship-based supply chains (e.g., specialty coffee or cocoa) where stakeholders can directly appreciate the integrity behind the label. By contrast, in mass commodity chains with long distances and anonymous transactions, PGS's lack of formal recognition becomes a binding constraint. Positioning PGS in these global markets will require bridging mechanisms. Scaling is not about creating one large entity but about replicating the model across clusters and linking them through a federation structure, which maintains local trust while a higher-level body coordinates standards for broader credibility. Furthermore, investments in digitization for traceability could provide the transparent record-keeping necessary to reassure distant buyers, serving as a tool to help p*articipatory certification travel across borders. The broader implication is that PGS can enhance inclusion in global value chains, but scaling it beyond local contexts demands supportive institutional environments and careful adaptation to meet the expectations of distant actors.*

Farmer Agency, Co-Design, Inclusion, and Equity

A central implication of PGS is the elevation of farmer agency in the certification process. Unlike top-down audits, PGS empowers producers to co-design standards and collectively verify compliance, giving them a direct voice in defining quality and sustainability. This participatory ethos addresses a key critique of conventional certifications: the exclusion of smallholders. By lowering monetary barriers and encouraging peer support, PGS can include farmers who lack the resources for third-party certification, thereby advancing equity in market access.

The findings show that when farmers are genuine partners in certification, they develop ownership over the process – building local capacity and trust that improves long-term compliance. Standards can also be tailored to local ecological and cultural conditions, which enhances their relevance and uptake. However, greater inclusion via participation comes with a trade-off in transaction costs. Farmers must invest significant time and effort into training, committee meetings, and peer inspections, a burden that can strain their schedules and personal lives. In the case study, producers expressed willingness to volunteer time for PGS activities, reflecting strong community commitment. Yet this may not universally hold: in contexts where farmers are more isolated or labor-constrained, sustaining active participation is challenging.

The broader mechanism at play is social capital: PGS leverages trust and mutual accountability as governance tools. This works well in tight-knit groups with a shared ethos of cooperation, but it may falter in communities with low cohesion or power imbalances. Thus, the success of PGS in enhancing farmer agency and inclusion will depend on boundary conditions such as community trust, literacy and training levels, and the presence of facilitation to ensure all voices (including women and marginalized farmers) are heard. Overall, the general lesson is that farmer-centric certification can promote equity and empowerment in value chains, provided the design is sensitive to local capacities and accompanied by strategies to mitigate volunteer fatigue.

Governance, Integrity, and Credibility at Scale

Maintaining the integrity and credibility of a PGS as it grows is a balancing act. In small groups, peer inspections and consensus-based governance are straightforward as social pressure reinforces honest behavior. The broader challenge is scaling these practices to larger networks or multiple communities without diluting trust. Our case findings underscore that PGS governance needs to evolve as scope expands. What works informally in a village requires more structure when hundreds of farmers are involved. Standardized procedures, record-keeping, and oversight committees become important to prevent inconsistencies. A key implication is the tension between keeping things participatory and ensuring rigor at scale. Formalizing too much could alienate farmers, while insufficient structure can undermine credibility if participants bypass rules or conflicts of interest go unchecked.

Evidence from other PGS initiatives highlights these risks. Low member participation and unequal workload sharing threaten governance, as a few overburdened individuals can "burn out" or become gatekeepers. In larger groups, peer review may suffer from familiarity bias unless new mechanisms are introduced, such as cross-audits between communities or involvement of neutral observers. One practical adaptation is layered governance: small clusters maintain intimacy and trust, while a higher-level body coordinates standards, training, and compliance across clusters. This federation model preserves local ownership yet provides checks beyond the village. Incorporating external stakeholders (e.g., local NGOs) in advisory roles can further boost credibility for outsiders.

The generalizable insight is that credibility at scale hinges on transparency and accountability measures that complement grassroots trust. PGS can uphold integrity with growth, but only through deliberate steps to formalize peer monitoring, distribute responsibilities broadly, and introduce safeguards against opportunism. Ultimately, PGS governance must remain adaptable - blending community norms with selective formal oversight as the system matures.

Market Access, Regulation, and Policy Enablers

The broader viability of PGS is strongly mediated by the policy and market environment. A clear implication from this research is that regulatory recognition can make or break the scaling of PGS beyond local niches. In many regions, PGS groups operate in a legal gray zone where their products cannot be officially labeled as organic or fair trade under national laws, limiting access to supermarkets and export channels that require accredited certification. If PGS is to contribute more broadly to sustainable supply chains, regulators need to create enabling conditions. Some pioneering countries now allow PGS-certified produce to be sold with an "organic" claim in domestic markets under certain conditions. Such institutional recognition elevates PGS from a community initiative to a legitimate certification pathway. Equally important are "softer" policy supports: extension services providing technical assistance, grants for initial organizing costs, and inclusion of PGS in public procurement programs.

The study's findings also suggest that international trade policy could play a role. Allowing imports from PGS schemes to be recognized as organic would open export market access for smallholders without costly third-party certification. Importing countries could adapt their organic import rules to accommodate vetted PGS products, though such changes must ensure PGS integrity is maintained through mutual recognition agreements or international oversight. In summary, PGS expansion and impact depend heavily on supportive governance frameworks. Where governments and institutions actively legitimize and assist PGS, these systems are far more likely to scale and persist. Conversely, in policy vacuums or under restrictive laws, PGS may remain confined to informal or local circuits despite their social merits.

Consumer Awareness, Trust, and Signaling

From a demand-side perspective, our findings reveal that consumer education is the critical driver for PGS acceptance. When educated about PGS principles, consumers responded with positive attitudes and a willingness to pay a premium, indicating latent demand for more authentic, locally empowering certifications. This suggests that increasing awareness can convert niche skepticism into acceptance, providing a mechanism for broader market uptake. However, significant challenges remain in building this recognition beyond local direct-to-consumer settings where personal relationships naturally foster trust.

PGS faces particular signaling challenges in broader markets due to label diversity and variability across networks, which can confuse shoppers accustomed to unified global certifications. While this diversity reflects PGS's local character, it risks diluting consumer confidence. Strategic approaches such as co-branding - pairing local PGS seals with recognizable umbrella endorsements - may help signal credibility without undermining local identity. Additionally, radical transparency through sharing inspection reports, inviting consumer observers, or using traceability technology could help bridge the trust gap by demonstrating integrity directly to consumers. The broader implication is that PGS organizations must treat communication and outreach as prerequisites rather than afterthoughts. Without strategic investment in storytelling, community engagement, and possibly alliances with ethical retailers, even the most robust PGS will struggle to expand beyond direct markets. Ultimately, bridging the consumer information gap is essential for PGS to achieve external validity and scale its impact.

Economic Viability, Financing, and Resilience

Our financial modeling indicates that PGS can be economically viable and improve farm economics under the right conditions, though important trade-offs exist. By dramatically reducing direct certification costs and encouraging agroecological practices that lower input expenses, PGS can generate savings that offset the time and administrative investments required for peer reviews. When PGS certification unlocks price premiums in specialty markets, the income boost can substantially outweigh any initial productivity losses from transitioning to organic methods. This finding is supported by evidence from other agricultural contexts showing significant profitability gains despite initial yield reductions.

However, the transition to sustainable practices under PGS can entail short-term yield reductions or higher labor requirements that not all farmers can afford without support. This underscores the need for external assistance through grants, cooperative funds, or phase-in subsidies to help farmers through the conversion period. Beyond immediate economics, PGS fosters resilience by strengthening local networks and diversifying market access, reducing reliance on volatile commodity buyers. The peer-to-peer knowledge exchange inherent in PGS also builds agronomic resilience through sustainable techniques that improve soil health and climate adaptability.

Organizationally, PGS faces a tension between maintaining volunteer-based systems and the need for professional coordination as groups expand. While volunteer models minimize costs, they may struggle with sustainability at scale. The broader implication is that economic viability depends on organizational designs that balance modest membership fees, selective external funding, and premium-sharing arrangements while keeping net benefits positive for farmers. Ultimately, PGS works best in high-value, high-margin sectors, requiring creative approaches for low-margin staple crops. Where successful, PGS delivers not only economic benefits but also community-level resilience dividends through knowledge sharing and strengthened social networks.

Methodological Contributions and a Replicable Feasibility Framework

A key implication of this work is the methodological framework itself. Our mixed-methods approach provides a replicable blueprint for assessing the feasibility of participatory certifications in other contexts. This interdisciplinary framework helps de-risk such initiatives by ensuring they are evaluated through social, economic, and institutional lenses simultaneously. By synthesizing stakeholder perspectives with empirical data, we demonstrate how future studies can develop action-oriented implementation roadmaps grounded in both lived experience and analytical rigor. This approach provides a template for researchers and practitioners to adapt when examining sustainable agriculture innovations, ultimately contributing to a more cumulative body of evidence on what works, where, and why in value-chain interventions.

5.2.2. Implications for Argote

For Argote Specialty Coffee, the general implications outlined above translate into several case-specific considerations.

Positioning in global value chains

Unlike most PGS initiatives in Colombia, which remain oriented toward local markets, Argote operates as a specialty exporter directly connected to European roasters through This Side Up. EU legislation requires compliance with strict environmental and human rights standards, including full traceability under the EUDR and corporate due diligence obligations (see 3.3). While PGS alone does not suffice to meet these requirements, it can function as a complementary mechanism that strengthens transparency and provides a locally grounded certification base. In practice, PGS could facilitate the development of cost-sharing group certification models or support future applications for recognized organic labels, while simultaneously enhancing Argote's ability to communicate a credible sustainability narrative to roasters and end-consumers.

Farmer agency and inclusion

The current coordination role of Argote concentrates most organizational responsibilities in Juan Pablo. Introducing a PGS would allow smallholders in Génova to participate more directly in defining standards, conducting peer inspections, and monitoring compliance. Importantly, interviews with producers suggest that farmers are willing to assume additional responsibilities, provided that participation generates clear advantages in terms of price stability, recognition, or improved bargaining power. In this sense, the participatory structure of a PGS can reinforce trust among members while also redistributing responsibilities in a manner perceived as legitimate.

Economic viability and risk

Our research indicates that PGS implementation is economically feasible for a representative Argote farm, with positive net margins emerging once initial costs are absorbed. PGS offers a more accessible pathway to formal recognition of sustainable practices without the high compliance costs associated with TPC schemes. However, the extent of financial gains ultimately depends on whether roasters and consumers are willing to reward the label, as well as whether *This Side Up* is willing to offer a price premium from PGS implementation. In the short term, this implies that external support, such as through NGO partnerships, or municipal funding, may be required to offset start-up costs and ensure consistent farmer participation until market benefits materialize.

Scalability and hybrid governance

Given Argote's role as an export-oriented hub, a purely volunteer-driven governance model would be unlikely to meet the administrative and reporting demands expected by international buyers. A hybrid structure is therefore recommended: peer inspections and collective decision-making remain farmer-led, thereby maintaining the participatory ethos of PGS, while Juan Pablo (or designated professional coordinators) assume responsibility for record-keeping, external communications, and compliance management. This balance between farmer empowerment and professionalized administration would increase both credibility and long-term sustainability.

Consumer awareness and trust

Our findings show that while European consumers attach value to sustainability labels, knowledge of PGS remains limited. For Argote, this highlights the need to actively communicate the meaning of PGS certification in consumer-facing narratives. Importantly, This Side Up, as Argote's direct-trade partner, is already knowledgeable about and interested in PGS, suggesting that there is existing willingness in the supply chain to recognize and promote such certification. This creates a favorable entry point: while Argote must still invest in awareness-raising for roasters and end-consumers, its immediate buyer is prepared to support and valorize the initiative, which strengthens the credibility and market potential of PGS adoption.

Strategic opportunity

Finally, by piloting a PGS in an export-oriented supply chain, Argote would position itself as a pioneer in Colombia. Demonstrating that participatory certification can be reconciled with international trade would not only enhance Argote's market story but also generate policy relevance as an example of how PGS might be scaled beyond domestic markets. This pioneering role could strengthen Argote's competitive advantage and attract buyers seeking innovative models of sustainability and producer empowerment.

5.3. RESEARCH LIMITATIONS

In our effort to maintain a standard of quality for our research, it is imperative we discuss the limitations of this study. To begin with, the willingness-to-pay experiment, while directionally insightful, failed to produce any statistically significant results. Moreover, its economic significance extends almost one order of magnitude higher than other experiments in the context of European consumers and for similar product characteristics. We attribute this to a form of selection bias, as the consumer surveys were primarily circulated through the researchers' own network. Similarly, the insights that we can derive from our interviews - conducted during the research expedition- might also be limited. While there is no widely accepted quantity standard for qualitative research, we acknowledge we are on the low range high-quality research would require, although the relative homogeneity of the group provides us with some confidence as to the strength of our findings from that section.

When it comes to the case studies analysis conducted, we recognized some limitations. Direct evidence on PGS-specific seals was sparse; accordingly, we drafted only general rules for seal use and flagged them for legal review and field validation. Practitioner documents sometimes lacked formal methods; we mitigated this by triangulation with peer-reviewed studies and by prioritizing Colombian and Mexican operational manuals for detail about procedures. Transferability is constrained for features originating in domestic-market PGSs; these were adapted to Argote's export context (for example, technical observers in place of consumer committees, and positioning the seal as a trust-and-traceability device rather than a legal organic claim). Cost and time-use estimates were uneven across cases; where absent, assumptions were recorded for field validation and for quantitative sensitivity analysis. These steps do not remove all uncertainty, but they make the sources of uncertainty explicit and manageable for decision-making.

The external validity of our findings also may come into question, especially considering the localized context of our work. For instance, our economic analysis remains sensitive to the prices of inputs, due to the razor-thin margins a typical coffee-farm operates on. Even if we assume export prices, cost of labor and other running costs are proportionate in other coffee markets, other assumptions are very likely not to hold and need to be re-evaluated for other countries and agricultural products. Even within the coffee market, our results are calibrated to small, specialty farms. It might as well be that economies of scale larger farms are able to capitalize on distort or even invert the positive impact of PGS implementation. As a last point, the volume of research on the economic viability of PGS implementation in coffee markets is quite limited at this point in time and therefore does not allow us to get a sense of direction by comparing our results with other researchers. The aforementioned points do not invalidate the essence of our findings, but highlight data limitations and potential issues with internal and external validity that could be the avenue for further research.

6. Conclusion

6.1 KEY TAKEAWAYS & RECOMMENDATIONS

This study shows that Participatory Guarantee Systems (PGS) can complement third-party certification in Colombia's coffee sector. For smallholders in Génova, PGS offers a low-cost, participatory way to strengthen trust, traceability, and farmer agency. Consumers value its fairness and sustainability focus, and financial analysis suggests it can improve margins within a few years.

For Argote Specialty Coffee, the recommendation is to pilot a hybrid model in which PGS provides the foundation for local governance and transparency while formal certifications secure export access. Priorities should include training, simple record-keeping, and clear communication to buyers, positioning Argote as a pioneer of participatory certification in international specialty markets.

6.2. FUTURE RESEARCH

The topic of participatory guarantee schemes in agriculture has inarguably great potential to enhance the environmental, social and economic aspects of coffee production -particularly for those who have been left behind in the past decades-, yet little is known in the form of credible, actionable research. Based on what we have contributed so far, we provide some ideas for those who wish to explore this fascinating topic.

The main quantitative research question is whether and how effectively can such a scheme reliably be implemented to pull coffee farmers out of poverty. In this direction, we hope further research is conducted a) in different contexts (geographies) b) for different products and c) for farmlands of different sizes. Regarding perceptions of value and willingness-to-pay, research should focus on exploring specifically whether participatory schemes are equivalent to third-party certifications in safeguarding aspects of quality, equity and environmental protection. Lastly, as a confounding factor, efforts could be diverted in researching the support - or absence of - provided by the legal framework in domestic and export markets, and the impact it has on economic viability and value perception of PGS products.

On the qualitative side, we would welcome more research on the ex ante variables that ensure successful PGS implementation, especially in the long run, as well as ex post evaluation of successful participatory systems. We remain hopeful that our framework for the interviews, as well as the implementation guide, will provide meaningful support for future researchers in these key areas. Overall, comprehensive research on PGS would causally link the qualitative factors of long-lasting implementation with labor market outcomes, and pinpoint the role awareness plays in consumer choice for agricultural products.

REFERENCES

ABinder, N., & Vogl, C. R. (2018). Participatory guarantee systems in Peru: Two case studies in Lima and Apurímac and the role of capacity building in the food chain. Sustainability, 10(12), 4644. https://doi.org/10.3390/su10124644

Chaparro-Africano A.M., Páramo. M., 2022, Challenges of the Participatory Guarantee System of the network of agroecological markets of Bogota-Region, as a strategy for certification and promotion of agroecology, International Journal of Agricultural Sustainability, 20(3)

Cuéllar-Padilla, M., & Ganuza-Fernandez, E. (2018). We Don't Want to Be Officially Certified! Reasons and Implications of the Participatory Guarantee Systems. *Sustainability*, *10*(4), 1142.

Farreras V., Salvador P.F., 2022, Why do some Participatory Guarantee Systems emerge, become effective, and are sustained over time, while others fail? An application of the Ostrom social-ecological system, Land Use Policy, Volume 118, 106134

Food and Agriculture Organization of the United Nations (FAO). (2018). *Participatory Guarantee Systems (PGS) for sustainable local food systems*. FAO. Retrieved March 19 2025, from https://openknowledge.fao.org/server/api/core/bitstreams/271c894c-7eb3-45fd-8f7a-e00f171l33ac1/content

Home, R., Bouagnimbeck, H., Ugas, R., Arbenz, M., & Stolze, M. (2021). Participatory guarantee systems: Organic certification to empower farmers and strengthen communities. Agroecology and Sustainable Food Systems, 45(6), 1-20. https://doi.org/10.1080/14735903.2021.1934364

Hruschka, N., Kaufmann, S., & Vogl, C. R. (2022). The benefits and challenges of participating in Participatory Guarantee Systems (PGS) initiatives following institutional formalization in Chile. International Journal of Agricultural Sustainability, 20(4), 393–407. https://doi.org/10.1080/14735903.2021.1934364

IFOAM – Organics International. *Participatory Guarantee Systems (PGS)*. IFOAM – Organics International. Retrieved March 19 2025, from https://www.ifoam.bio/our-work/how/standards-certification/participatory-guarantee-systems

IFOAM – Organics International. PGS Guidelines. How to Develop and Manage Participatory Guarantee Systems for Organic Agriculture Germany, 2019.

Jacobi, J., Toledo Vásquez, D. G., Solar Alvarez, J. M., & Bürgi Bonanomi, E. (2023). "First we eat and then we sell": Participatory guarantee systems for alternative sustainability certification of Bolivian agri-food products. Agroecology and Sustainable Food Systems, 47(1), 72–99. https://doi.org/10.1080/21683565.2022.2131692

REFERENCES

Jaffe, J., & Gertler, M. (2006). Victual Vicissitudes: Consumer Deskilling and the (Gendered) Transformation of Food Systems. *Agriculture and Human Values, 23*, 143–162.

Kaufmann, S. & Vogl, C.R. (2018). Participatory Guarantee Systems (PGS) in Mexico: a theoretic ideal or everyday practice? *Agriculture and Human Values 35*, 457–472.

Kaufmann, S., Hruschka, N., & Vogl C.R. (2023). Participatory Guarantee Systems, a more inclusive organic certification alternative? Unboxing certification costs and farm inspections in PGS based on a case study approach. *Frontiers in Sustainable Food Systems*, 7:1176057.

Research Institute of Organic Agriculture FiBL & International Federation of Organic Agriculture Movements (IFOAM). (2024). *The world of organic agriculture: Statistics and emerging trends 2024*. Retrieved from https://www.fibl.org/fileadmin/documents/shop/1747-organic-world-2024_light.pdf

Solarte, M. R. & Grass, J. F. (2020). The Participatory Guarantee System (SPG) as an administrative strategy in the rural coffee-growing territories of Cauca, Colombia. El Sistema Participativo de Garantías (SPG) como estrategia administrativa en los territorios rurales cafeteros del Cauca, Colombia. *Repositorio Institucional UNAD.* Retrieved March 24 2025, from https://repository.unad.edu.co/handle/10596/46592

Steinegger, S. (2024). Within and beyond certification: Farmer self-determination through the participatory guarantee system in the Peruvian Andes. Department of Geography, University of Bern. https://www.geography.unibe.ch/research/political_urbanism_and_sustainable_spatial_development/news_from_our_research_and_teaching/within_and_beyond_certification_farmer_self_determination_through_the_participatory_guarantee_system_in_the_peruvian_andes/index_eng.html

Willer, H., Schlatter, B., Trávníček, J., Kemper, L., & Lernoud, J. (Eds.). (2024). The world of organic agriculture: Statistics and emerging trends 2024. Research Institute of Organic Agriculture (FiBL), Frick, and IFOAM – Organics International. https://www.fibl.org/fileadmin/documents/shop/1747-organic-world-2024_light.pdf

Bavorová, M., Hamade, K., & Hinkelmann, K. (2024). Factors influencing farm succession decisions: Evidence from coffee farmers of Colombia. *Environment, Development and Sustainability*, 26, Article 1376051.

Berry, A. (2017). Has Colombia finally found an agrarian reform that works? *Political Economy Research Institute Working Paper*. Cárdenas Gutiérrez, J. (1993). *La industria del Café en Colombia*

REFERENCES

Cárdenas Gutiérrez, J. (1993). *La industria del Café en Colombia*

Carte, L., Schmook, B., Radel, C., & Johnson, R. J. (2019). The slow displacement of smallholder farming families: Land, hunger, and labor migration in Nicaragua and Guatemala. *Land*, 8(10), 151.

Clarence-Smith, W. G., & Topik, S. (Eds.). (2003). *The Global Coffee Economy in Africa, Asia, and Latin America, 1500–1989* (By School of Oriental and African Studies, University of London & University of California, Irvine). https://assets.cambridge.org/97805218/18513/sample/9780521818513ws.pdf

Coffee, C. (2025, March 20). *Colombian Coffee: Growing, Taste, and Buying guide*. Colipse. https://colipsecoffee.com/blogs/coffee/colombian

Coffee, not roasted or decaffeinated exports by country |2023. (n.d.). https://wits.worldbank.org/trade/comtrade/en/country/ALL/year/2023/tradeflow/Exports/partner/WLD/product/090111#

De Luca, G., & Sekeris, P. G. (2011). Land inequality and conflict intensity. *Public Choice*, 147(1-2), 213-228.

Doran, C. J. (2009). Who buys fair trade and why? *A random survey of households.* https://www.researchgate.net/publication/260412082

Estadísticas Cafeteras - Federación Nacional de Cafeteros. (2025, March 25). Federación Nacional De Cafeteros. https://federaciondecafeteros.org/wp/estadisticas-cafeteras/

Gáfaro, M., Ibáñez, A. M., Sánchez-Ordoñez, D., & Ortiz, M. C. (2020). Farm size and income distribution of Latin American agriculture: New perspectives on an old issue. *Inter-American Development Bank*. https://doi.org/10.18235/0005088

GourmetPro (2024). Coffee Market Trends. https://www.gourmetpro.co/blog/coffee-market-trends-expert-insights

Grand View Research (2024). Organic Coffee Market Report. https://www.grandviewresearch.com/industry-analysis/organic-coffee-market-report

Heliyon (2021). Meta-analysis on consumer willingness to pay for ecolabeled coffee. https://www.cell.com/heliyon/fulltext/S2405-8440(21)01146-4

REFERENCES

International Trade Centre (2023). Global Trade Indicators 2023. https://www.trademap.org/Index.aspx (Retrieved on March 5, 2024).

Leibovich, J., Izquierdo, J. M., Córdoba, C., Méndez, J., Gómez, V., & Federación Nacional de Cafeteros de Colombia. (2024). Informe de Gestión 2023. In O. Pineda (Ed.), Informe De Gestión 2023. https://doi.org/10.38141/10793

Meyfroidt, P., et al. (2021). Transformation of coffee-growing landscapes across Latin America: A review. Proceedings of the National Academy of Sciences, 118(30), e201814894.

Rehm, C. D., Ratliff, J. C., Riedt, C. S., & Drewnowski, A. (2020). Coffee Consumption among Adults in the United States by Demographic Variables and Purchase Location: Analyses of NHANES 2011–2016 Data. Nutrients, 12(8), 2463. https://doi.org/10.3390/nu12082463

Robichaud, Z. and Yu, H. (2022). Do Young Consumers Care about Ethical Consumption? Modelling Gen Z's Purchase Intention towards Fair Trade Coffee. British Food Journal, 124(9):2740–2760.

Rubio-Jovel, W. A., Arce, M. L., & Vargas, R. (2024). Coffee production networks in Costa Rica and Colombia: A systems analysis. Journal of Cleaner Production, 140643.

Rueda, X., & Lambin, E. F. (2013). Responding to globalization: Impacts of certification on Colombian small-scale coffee growers. Ecology and Society, 18(3), 21. https://doi.org/10.5751/ES-05595-180321

Saenz, M., Alvarez, D., & Brock, G. (2021). Lessons from long-run (1975–2017) structural change in Colombia's coffee production. Agricultural and Resource Economics Review, 50, 201–225.

Samoggia, A., & Fantini, A. (2023). Revealing the governance dynamics of the coffee chain in Colombia: A state-of-the-art review. Sustainability, 15(18), 13646.

Statista (2023). Per Capita Coffee Consumption by Country. https://www.statista.com/forecasts/758734/per-capita-volume-sales-in-the-coffee-market- worldwide-by-country (Retrieved on March 5, 2024).

Topik, S. (1987). *The Political Economy of the Brazilian State, 1889–1930*. University of Texas Press. https://doi.org/10.7560/765009

Trase (2021). Colombia Coffee Trade Flows. https://trase.earth/explore/supply-chain/colombia/coffee

United States Department of Agriculture (2025). Global Coffee Production Data. https://www.fas.usda.gov/data/production/commodity/0711100 (Retrieved on March 16, 2024).

REFERENCES

Utrilla-Catalan, J., Sánchez-Palacios, A., & López-Ruiz, V. R. (2022). Growing inequality in the coffee global value chain: A complex network assessment. *Sustainability*, 14(2), 672. *World Bank Open Data*. (n.d.). World Bank Open Data. https://data.worldbank.org/indicator/NY.GDP.MKTP.CD

CBI – Ministry of Foreign Affairs. (2024). *What requirements must coffee meet to be allowed on the European market?* https://www.cbi.eu/market-information/coffee/what-requirements-should-your-product-comply

Agencia de Desarrollo Rural (ADR). (n.d.). *Modelo de apoyo a la comercialización*. https://www.adr.gov.co/atencion-y-servicios-a-la-ciudadania/comercializacion/

AGROSAVIA. (2018, May 18). *Corpoica se transforma: ahora es AGROSAVIA*. https://www.agrosavia.co/noticias/corpoica-se-transforma-ahora-es-agrosavia

Congreso de la República. (1993). *Ley 101 de 1993: Ley General de Desarrollo Agropecuario y Pesquero*.

Congreso de la República. (2020). Ley 2046 de 2020: Compras públicas locales de alimentos. https://www.minagricultura.gov.co/Normatividad/Leyes/LEY%202046%20DEL%206%20DE%20AGOSTO%20DE%202020.pdf

Federación Nacional de Cafeteros de Colombia (FNC). (n.d.). Regístrese como exportador. https://federaciondecafeteros.org/wp/garantizamos-la-calidad-del-cafe/registrese-como-exportador/

IFOAM – Organics International. (2016). Participatory Guarantee Systems (PGS) guidelines. https://www.ifoam.bio/our-work/how/standards-certification/participatory-guarantee-systems/pgs-toolkit

Instituto Colombiano Agropecuario (ICA). (n.d.). Funciones del ICA. https://www.ica.gov.co/el-ica/funciones

Ministerio de Agricultura y Desarrollo Rural (MADR). (2006). Resolución 187 de 2006: Producción orgánica/ecológica. https://www.ica.gov.co/getattachment/efc964b6-2ad3-4428-aad5-a9f2de5629d3/187.aspx

Ministerio de Agricultura y Desarrollo Rural (MADR). (2017). Resolución 464 de 2017: Lineamientos para la Agricultura Campesina, Familiar y Comunitaria (ACFC). https://www.minagricultura.gov.co/Normatividad/Resoluciones/Resoluci%C3%B3n%20No%20000464%20de%202017.pdf

REFERENCES

Ministerio de Agricultura y Desarrollo Rural (MADR). (2024b). Anexo técnico – Lineamientos de Política Pública de Agroecología. https://www.minagricultura.gov.co/Normatividad/Resoluciones/Anexo%20T%C3%A9cnico%20-%20Lineamientos%20de%20Pol%C3%ADtica%20P%C3%BAblica.pdf

Servicio Nacional de Aprendizaje (SENA). (n.d.). AgroSENA – Formación y extensión agropecuaria. https://www.sena.edu.co/es-co/formacion/Paginas/agro_sena.aspx

Terra Nuova. (2019). El sistema de garantía participativo – SGP: Alternativa viable para la acreditación de la producción ecológica en la Amazonía peruana. Terra Nuova.

Nelson, E. T. (2012). Re-Imagining Food Systems in Mexico: A Case Study of the Mexican Network of Local Organic Markets. (Doctoral dissertation, University of Guelph).

Corporación Autónoma Regional de Risaralda (CARDER), Universidad Tecnológica de Pereira – Instituto de Investigaciones Ambientales (IIA), CORA, UNISARC, & Agrosolidaria Federación Risaralda. (2018). Certificación de confianza Risaralda: Guía para orientar el proceso de implementación del Sistema Participativo de Garantías. CARDER; Universidad Tecnológica de Pereira.

Chacón, X., & García, M. (2017). Redes de custodios y guardianes de semillas y casas comunitarias de semillas nativas y criollas: Guía metodológica. SWISSAID; Corporación Biocomercio Sostenible. (Edición en Bogotá, ISBN 978-958-59298-0-1).

García-Hoyos, A. M., García-Álvarez, M., Aguilar-Gómez, T., & Mena-Mosquera, L. (2019). Construcción de casas comunitarias de semillas nativas criollas con sistemas participativos de garantía de calidad en Colombia. En C. A. Rengifo-Pardo (Ed.), Agroecología: Experiencias comunitarias para la agricultura familiar en Colombia (pp. 176–192). Universidad Nacional de Colombia – Sede Palmira; Universidad de Nariño; SENA.

Rikolto (previously VECO Vietnam), & PGS Coordination Committee. (2018). Participatory Guarantee Systems (PGS): Technical manual (Second draft, November 2018). Rikolto.

Winkler, G., Kaufmann, S., Hruschka, N., & Vogl, C. R. (2024). Participatory Guarantee Systems: Structure, benefits and reasons for participation – insights from the Italian case study of Campi Aperti. Frontiers in Sustainable Food Systems, 8, 1388853. https://doi.org/10.3389/fsufs.2024.1388853

Fundación Servicios para el Desarrollo Alternativo (SEDAL), & Red de productoras agroecológicas y solidarias BioVida. (n.d.). Cartilla del Sistema Participativo de Garantía Local (SPGL) de la Red BioVida. SEDAL.

REFERENCES

IFOAM – Organics International. (2019, December). PGS guidelines: How to develop and manage participatory guarantee systems for organic agriculture (Updated ed.). IFOAM – Organics International. https://www.ifoam.bio/sites/default/files/pgs_guidelines_en.pdf

Rodríguez Silva, R. C., Schwentesius Rindermann, R., Gómez Tovar, L., & Gómez Cruz, M. Á. (2018, October). *Participative organic certification in the Chapingo Organic Market, Mexico* [Conference paper].

Requelme, N. (Coord.), Carvajal, J., Lizano Acevedo, R., Cachipuendo, C., & Yaselga, P. (2019). *Mujeres en resistencia y territorios agroecológicos: Construcción participativa de la ordenanza de uso de espacios públicos para la comercialización de productos sanos en ferias agroecológicas-Cayambe*. Editorial Universitaria Abya-Yala / Universidad Politécnica Salesiana.

Cuéllar-Padilla, M., & Ganuza-Fernandez, E. (2018). *We Don't Want to Be Officially Certified! Reasons and Implications of the Participatory Guarantee Systems.* Sustainability, 10(4), Article 1142. https://doi.org/10.3390/su10041142

Diana Córdoba (2024) Fair trade certification and class formation in Nicaragua's coffee plantations, Canadian Journal of Development Studies / Revue canadienne d'études du développement, 45:3, 475-497, DOI: 10.1080/02255189.2024.2371358

Eva-Marie Meemken, David J. Spielman, Matin Qaim, Trading off nutrition and education? A panel data analysis of the dissimilar welfare effects of Organic and Fairtrade standards, Food Policy, Volume 71, 2017, Pages 74-85, ISSN 0306-9192, https://doi.org/10.1016/j.foodpol.2017.07.010

Eva-Marie Meemken, Do smallholder farmers benefit from sustainability standards? A systematic review and meta-analysis, Global Food Security, Volume 26, 2020, 100373, ISSN 2211-9124, https://doi.org/10.1016/j.gfs.2020.100373

Flachsbarth, I., N. Grassnick, B. Brümmer (2020). The uneven spread of Global G.A.P certification. GlobalFood Discussion Paper 137, University of Goettingen.

Halabi, S. F. and Lin, C.-F. (2017). Assessing the Relative Influence and Efficacy of Public and Private Food Safety Regulation Regimes: Comparing Codex and Global G.A.P. Standards. Food and drug law journal, 72(2):262–294

Holzapfel, S., & Wollni, M. (2014). Is GlobalGAP Certification of Small-Scale Farmers Sustainable? Evidence from Thailand. The Journal of Development Studies, 50(5), 731–747. https://doi.org/10.1080/00220388.2013.874558

REFERENCES

Jena PR and Grote U (2022) Do Certification Schemes Enhance Coffee Yields and Household Income? Lessons Learned Across Continents. Front. Sustain. Food Syst. 5:716904. doi: 10.3389/fsufs.2021.716904

Jones, K.; Njeru, E.M.; Garnett, K.; Girkin, N. Assessing the Impact of Voluntary Certification Schemes on Future Sustainable Coffee Production. Sustainability 2024, 16, 5669. https://doi.org/10.3390/ su16135669

Joshua G. Bray & Jeffrey Neilson (2017) Reviewing the impacts of coffee certification programmes on smallholder livelihoods, International Journal of Biodiversity Science, Ecosystem Services & Management, 13:1, 216-232, DOI: 10.1080/21513732.2017.1316520

Julius Rathgens, Stefan Gröschner, Henrik von Wehrden, Going beyond certificates: A systematic review of alternative trade arrangements in the global food sector, Journal of Cleaner Production, Volume 276, 2020, 123208, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2020.123208.

Laura T. Raynolds, Mainstreaming Fair Trade Coffee: From Partnership to Traceability, World Development, Volume 37, Issue 6, 2009, Pages 1083-1093, ISSN 0305-750X, https://doi.org/10.1016/j.worlddev.2008.10.001.

Lozano Paredes, D. L., Okada Saavedra, H., Moscoso Cuaresma, J. R., Azabache Moran, C. A., Delgado, K. N. d. P. Y., Diaz Cruz, M. E., Salazar Seminario, V. L., Pastor Pinto, J., & Amer Layseca, T. (2025). Fairtrade in Peru: Challenges and Opportunities for Sustainable and Equitable Agricultural Development. Sustainability, 17(2), 486. https://doi.org/10.3390/su17020486

Marx, A., Depoorter, C., Fernandez de Cordoba, S., Verma, R., Araoz, M., Auld, G. et al. (2024) Global governance through voluntary sustainability standards: Developments, trends and challenges. Global Policy, 15, 708–728. Available from: https://doi.org/10.1111/1758-5899.13401

"Max Havelaar | Max Havelaar". Archived from the original on 2007-09-01. Retrieved 2025-03-15.

Overbeek, A. (2019). Examining the Efficacy of Fair Trade and Alternative Consumption on Environmental Sustainability and Human Rights in Developing Countries. Consilience, 21, 158–171. https://www.jstor.org/stable/26775089

Philip Schleifer, Yixian Sun, Reviewing the impact of sustainability certification on food security in developing countries, Global Food Security, Volume 24, 2020, 100337, ISSN 2211-9124, https://doi.org/10.1016/j.gfs.2019.100337.

Raluca Dragusanu, Eduardo Montero, Nathan Nunn, The Effects of Fair Trade Certification: Evidence from Coffee Producers in Costa Rica, Journal of the European Economic Association, Volume 20, Issue 4, August 2022, Pages 1743–1790, https://doi.org/10.1093/jeea/jvac026

REFERENCES

Rexford Akrong, Angela Dziedzom Akorsu, Praveen Jha, Joseph Boateng Agyenim, Assessing the trade and welfare effects of certification schemes: The case of GlobalGAP in Ghana's mango sector, Scientific African, Volume 18, 2022, e01425, ISSN 2468-2276, https://doi.org/10.1016/j.sciaf.2022.e01425.

Sven Anders, Diogo Souza-Monteiro & Elodie Rouviere (2010) Competition and Credibility of Private Third-Party Certification in International FoodSupply, Journal of International Food & Agribusiness Marketing, 22:3-4, 328-341, DOI:10.1080/08974431003641554

“The Coffee Crisis.” Coffee Conservation RSS, 8 Feb. 2006, www.coffeehabitat.com/2006/02/the_coffee_cris/.

Valkila, J., Haaparanta, P., & Niemi, N. (2010). Empowering Coffee Traders? The Coffee Value Chain from Nicaraguan Fair Trade Farmers to Finnish Consumers. Journal of Business Ethics, 97(2), 257–270. http://www.jstor.org/stable/40929408

“What Is Third-Party Certification? | NSF.” National Sanitation Foundation, NSF, 29 June 2020, www.nsf.org/knowledge-library/what-is-third-party-certification.

W. Vellema, A. Buritica Casanova, C. Gonzalez, M. D’Haese, The effect of specialty coffee certification on household livelihood strategies and specialisation, Food Policy, Volume 57, 2015, Pages 13-25, ISSN 0306-9192, https://doi.org/10.1016/j.foodpol.2015.07.003.

8. APPENDIX

8.1 INTERVIEW PROTOCOL

The interviews consisted of a number of questions regarding different aspects of farming, certification of PGS in general. If the answers provoked a deviation from the structure but hinted at meaningful insights, some additional questions were added. If interviewees did not understand the questions immediately, they were rephrased or enhanced with examples to facilitate answers. The interviews were conducted at different times of the day, but usually after the harvest hours. They took place in several locations, most of them on or close to the coffee farms, and the interview language was Spanish.

The interviews began by establishing a baseline of heterogeneity among participants. Farmers were asked about their experience in coffee production, the size of their farms, and whether they had previously engaged with certification schemes or export activities. This section also probed their relationships with Juan Pablo as a central figure in the association, in order to understand how responsibilities and decision-making are currently distributed. Questions of fairness in sales and remuneration followed, allowing farmers to reflect not only on their personal situation but also on how they perceive equity within coffee producers in general.

The second block of questions turned to certification and, more specifically, to Participatory Guarantee Systems. Farmers were encouraged to share their impressions of certification in general and their views on the importance of producing organically. After a brief presentation of PGS before the interviews, they were asked what they understood by the concept, whether they believed it could work in their context, and what benefits or drawbacks they anticipated. This part of the interview further explored the practical commitments PGS would require, such as time spent in meetings or on peer inspections, and the willingness of farmers to share knowledge and collaborate. The possibility of establishing a coordination committee and including external advisors was introduced, and farmers were asked who they believed should take part in decision-making and under what conditions external advice would be welcomed.

The interviews concluded with questions on enforcement, administration, and final impressions. Farmers were invited to reflect on how rules could be upheld within the community, considering possible challenges linked to social ties or power differences. They were asked about their ability and experience with recordkeeping, and what type of support they might need to manage the administrative requirements of certification. Finally, interviewees were encouraged to step back from the technicalities and share their broader aspirations: what they would change about coffee if they could, and what they wanted international buyers or consumers to understand about their work and lives. This closing section provided space for more personal reflections that could situate the potential PGS within the lived realities of farming families in Génova.

8.2 INTERVIEW SUMMARIES

8.2.1. Field Interviews

Over the field trip we have made several field interviews directly discussing relevant topics with the coffee producers in the community. Following we find a small summary of each interview in order to further understand the farmers opinion:

- Juan Pablo's Interview

Juan Pablo, a coffee producer with nine years of experience, cultivates two hectares independently and an additional three hectares in partnership, managing approximately 10,000 plants and participating directly in coffee export. He is also the leader of Risaralda, managing and exporting coffee on behalf of producers in the region. He believes farmers have historically been underpaid, with remuneration heavily dependent on international price fluctuations, and views current certification systems as unfair and monopolistic. For him, organic production is a core principle, rooted in a commitment to soil health, environmental preservation, and long-term sustainability. Having farmed organically for five years, he considers this approach viable within the framework of Participatory Guarantee Systems, which he values for empowering farmers to self-govern under collectively agreed rules rather than externally imposed regulations. He highlights that income remains the primary concern for most farmers and sees certification, when fairly managed as a potential tool for improving earnings. While acknowledging that PGS requires significant time investment, he regards this as worthwhile and emphasises the importance of regular meetings and workshops for knowledge sharing and collective learning.

Juan Pablo welcomes external advisors, provided they demonstrate patience, flexibility, and an understanding of the gradual nature of behavioural change in farming communities. He notes that older farmers tend to resist change more than younger or newer producers and that persistent encouragement is necessary to foster habits such as record-keeping. He stresses that enforcing PGS rules must be a collective decision, with group-based auditing to prevent bias and conflicts of interest, and advocates for diversity among inspection teams. He sees the adoption of record-keeping as a behavioural rather than technical challenge. Finally, he calls for a rethinking of the coffee sector - not merely as a commodity market but as a human-centred industry involving multiple actors whose efforts deserve recognition. He urges international consumers to visit coffee-growing regions to witness firsthand the work, dedication, and collaboration behind every cup.

- Abiela’s interview

Abiela, a coffee producer with over 50 years of experience managing 30,000 trees on six hectares, oversees the administrative side of her farm while relying on family and hired labour for operations. She sells coffee both to a cooperative and to a private buyer, noting that the cooperative’s pricing discourages quality production and undervalues smallholders, particularly women. Despite the scale of her farm, she remains in debt and supplements her income with other crops. Open to organic farming and Participatory Guarantee Systems (PGS), she has land reserved for organic production but faces worker scepticism, documentation challenges, and limitations due to her age, health, and caregiving responsibilities. She values the participatory aspect of PGS and believes in gradual adoption, with active involvement from workers, but emphasises the need for institutional support (especially from universities) to address administrative burdens and support gender equity in participation.

- Adelia’s interview

Adelia, an 85 year-old coffee producer with over 25 years of experience and more than five decades in the local cooperative, manages 30,000 coffee trees on six hectares with the help of six sharecroppers, overseeing the drying process herself. She sells to both the cooperative and a private buyer, noting that while coffee prices have improved over time, they remain unfair given the labour involved, particularly as the cooperative fails to reward quality. She highlights persistent gender discrimination, with women’s contributions undervalued. Although she has never engaged in certification schemes, Adelia supports organic production and has identified an area with 2,000 trees for transition, despite worker scepticism and challenges with documentation. Relying on family for administrative tasks due to limited education and her age, she sees a role for herself in Participatory Guarantee Systems (PGS) from home and advocates for collective inspections.. She hopes all coffee could be produced to high standards and urges international consumers to fairly value the work of women producers.

- Adrián’s interview

Adrián, a 36-year-old university graduate from Boyacá, manages 4,000 coffee trees on his mother’s farm from a distance, returning during harvests. He sells about 1,000 kg to a private buyer at slightly above average prices, but still struggles to make a living from coffee alone, supplementing his income with other activities. While he has not engaged in certification schemes, he is open to them, valuing organic practices for their environmental benefits but noting the challenge of lower yields without higher price premiums. Supportive of PGS for their collective approach and mutual enforcement, he is willing to commit 2–4 hours a week, especially on weekends, and values knowledge exchange. He keeps informal records and sees the potential of digital tools, though time is a constraint, and welcomes external advisors as long as they remain flexible. Advocating for independent inspectors and greater state support through subsidies and training, Adrián hopes international consumers will better appreciate the labour behind coffee production.

- Bernardo’s interview

Bernardo, a 40-year-old coffee farmer from Nariño with 15 years of experience, manages approximately 5,000 coffee trees and produces between 500 and 1,500 kg annually. He considers current coffee prices acceptable, he identifies rising fertiliser costs as a significant challenge and notes the broader issue of small-scale producers being under-compensated relative to larger farmers. Though he has not previously engaged in certification schemes, Bernardo is strongly inclined toward organic production, having completed relevant training, and expresses support for the collective principles of Participatory Guarantee Systems (PGS). He is willing to dedicate around two hours per week to PGS-related activities, contingent on collaboration with neighbouring producers, and is already active in peer-to-peer knowledge exchange, offering technical guidance on processing practices. He advocates for decision-making to be led by those with the most expertise, he remains open to external advisors who respect participatory processes. With experience in record-keeping aligned with federation guidelines, he identifies challenges in monitoring fertilisation due to seasonal variability and calls for increased soil testing frequency and technical assistance from universities. Ultimately, Bernardo is enthusiastic about transitioning to organic production and promoting his coffee internationally as a healthy, smooth product crafted with care.

- Eider’s interview

Eider is a 37-year-old coffee farmer with lifelong experience in the sector, cultivating 2,000 coffee trees and selling approximately 280 kg in 2023 exclusively to Juan Pablo, with prior experience in coffee export. While he feels adequately compensated for his own production, he observes that most farmers face underpayment due to high input costs, labour intensity, and limited alternative employment opportunities. He is critical of the Colombian Coffee Federation for its lack of practical, hands-on support and views conventional Fair Trade certification as costly and ineffective for producers. Although he regards organic farming as both environmentally and qualitatively superior, he has not adopted it due to insufficient price incentives. Eider expresses strong support for PGS, highlighting their collaborative potential for income improvement, and capacity for producer recognition. Willing to dedicate around four hours per week, he actively engages in peer knowledge exchange and advocates for a core committee composed of community-minded individuals, with respectful external participation. Acknowledging risks of bias in peer inspections, he recommends establishing clear rules and sanctions to maintain integrity. While he has not kept formal records, he recognises their importance and would adopt record-keeping with adequate training. Ultimately, Eider calls for structural changes in how farmers are valued and urges international consumers to recognise the labour in high-quality coffee production.

- Giovanni’s interview:

Giovanni, with 20 years of experience and primary education up to fifth grade, cultivates approximately half a hectare and, in their first year of exporting, sold 200 kg of coffee exclusively to international markets. Having never participated in certification schemes and finding the concept unclear, he is open to learning, particularly if it leads to economic benefits. While neutral about current payments, he considers coffee picking relatively well-paid compared to other agricultural work but emphasises that income and productivity remain priorities, adopting organic methods only if financially viable. Initially unfamiliar with PGS, they recognise their potential for brand building and better prices, expressing willingness to dedicate up to 10 hours weekly to related tasks, actively share knowledge, and collaborate with the community. He believes committees should comprise experienced and trusted members, welcome external advice from universities or buyers provided local farmers retain final authority, and see group consensus as key to rule enforcement, while acknowledging risks of bias from personal relationships. Although he has not kept production records, he tracks wage payments and finds fertilizer and expense records more challenging, calling for university support in administrative tasks. Ultimately, he would prioritise achieving fairer coffee prices and want consumers to appreciate the effort and quality invested in production.

- Iveth’s interview

Iveth is a coffee producer cultivating approximately one hectare with 3,000 trees, previously participating in a certification scheme focused on quality grading, though the experience was long ago and not impactful. She currently sells around 1,000 kg of coffee to a private exporter, having stopped selling to the cooperative after reduced output following replanting. Viewing current coffee prices as unfair, she notes that earnings are insufficient to sustain a household, requiring supplementary work and mutual labour exchanges among farmers. While interested in organic production, she considers it unsustainable due to lower income. Iveth understands the principles of PGS and is open to engagement if they ensure fair compensation, recognising the value of collective responsibility in pest control, though she highlights challenges from limited community cohesion. She is willing to dedicate about three hours per week to PGS activities, values peer knowledge exchange, and believes decision-making committees should comprise experienced and knowledgeable farmers. Record-keeping is limited to basic financial data, with fertilisation logs absent due to habit, and she would welcome university-led training and technical support. Emphasising the challenges of low prices and high costs, Iveth wishes buyers appreciated the labour behind coffee production and expressed pride upon learning her coffee was sold in European markets.

- Jesus’s interview

Jesus, a 58-year-old coffee producer with four decades of experience and secondary-level education, cultivates 2 hectares with approximately 10,000 trees and exports between 2,000 kg of natural and 2,500 to 3,000 kg of washed coffee annually, primarily through Juan Pablo, with around 300 kg sold locally. Having participated in certification systems such as Carcafé, Nespresso, and the Federación, he views these schemes as burdensome and costly for smallholders, often demanded by large buyers or European markets, and inaccessible without external support. He believes farmers are underpaid, especially for natural coffee, and dependent on international markets, noting recent price declines. While producing mostly organically with minimal chemical use, he initially found the concept of PGS difficult to grasp but now sees potential for quality improvement, international recognition, and community collaboration if accompanied by initial support. Willing to commit around two hours per week to PGS activities, Jesus actively promotes farmer meetings, knowledge exchange, and youth engagement, though he recognises challenges from community individualism, rivalries, and uneven cooperation. He stresses that effective committees require initiative and a positive reputation, and that rule enforcement depends on collective understanding. Comfortable with administrative tasks and maintaining detailed records, he remains open to external training and technical input, provided investments are justified by better prices. Ultimately, he calls for direct consumer–farmer connections to enhance value and expresses gratitude to buyers, aiming to produce excellent coffee while advocating for recognition and fairer compensation for all producers in the region.

- John, Silvana & Wueimer interview:

Silvania, a 44-year-old nurse with a technical degree, has worked in coffee since childhood and manages 1.5 hectares with 4,000 trees, producing 3,000 kg in the past year, partly certified and partly sold through cooperatives. Having previously participated in group certification, she values organic production for its health, flavour, and environmental benefits, and views Participatory Guarantee Systems (PGS) as a means for shared learning and collective commitment, willing to dedicate unlimited time to related activities. She maintains detailed records for management purposes, supports decision-making led by informed individuals, and welcomes external advisors who provide practical training. Wueimer, 54, with 20 years of coffee experience and 3,000 trees (two-thirds newly planted), has not engaged in certification or export but believes certification could improve prices and reduce intermediaries. He uses limited chemicals, is open to organic methods, and views PGS as a path to better prices and stronger cooperation, advocating sanctions for non-compliance and impartial inspections. Though he keeps no records, he is eager to learn bookkeeping. John, 29, with 10 years in coffee and 700 trees, exported 175 kg of coffee and sees certification as a route to fairer prices, expressing interest in organic farming despite its challenges. He views PGS as a tool for farmer unity and direct sales, willing to participate with seasonal time adjustments, and stresses that committees should prioritise community benefit over political or personal interests.

Across all three cases, common themes include concerns over low and unfair coffee prices, recognition of the potential of PGS to enhance cooperation and market access, interest in organic methods if economically viable, the importance of knowledge exchange, and calls for fairness, transparency, and greater recognition from consumers of the labour and livelihoods sustained by coffee production.

- Julia's interview

Julia, a 40-year-old coffee producer with 14 years of experience, cultivates two hectares, exporting part of her harvest through Juan Pablo and selling the rest locally. She believes farmers are underpaid despite recent price improvements and would adopt organic methods only if price premiums offset lower efficiency. Viewing PGS as viable if quality is maintained, she prefers participating through meetings, values knowledge exchange, and supports experienced farmers in committee roles. Open to external advisors who offer tangible benefits, she is cautious about sanctions and keeps no formal records, though she recognises their importance. Her main goal is for farmers to receive a greater share of coffee's value.

- Leonardo's interview

Leonardo is 74 years old, with 40 years experience as a coffee grower, he cultivates two hectares with 10,000 trees, exporting about 2,000 kg annually and selling a similar amount locally. He sees coffee prices as generally fair and values certification's economic benefits but has not pursued it due to age and time constraints. Though using non-organic fertilisers, he supports organic production for its quality and soil benefits. He views PGS as valuable, is willing to join meetings and share knowledge, and favours committees led by experienced farmers with qualified certifiers. Open to external advisors, he notes challenges in sanction enforcement, the influence of personal relationships on inspections, and the need for better administrative coordination. He calls for greater recognition, fairer rewards, and closer ties between producers and consumers.

- Luis Asencio interview

Luis Asencio, 47, with a university education and 15 years in coffee, cultivates one hectare with 4,500 trees, exporting 40% of his 700 kg production through Juan Pablo and selling the rest locally. He views certification as a means to improve farmer incomes and values organic production for enhancing quality. Supportive of PGS as a tool for collective marketing and better earnings, he is willing to commit time, engage in training, and share knowledge. He advocates for experienced organic producers on PGS committees, welcomes external advisors, and supports small fines for non-compliance. While not keeping records, he finds it easy to adopt and sees quality tracking as the main challenge, calling for fairer, more stable compensation and greater recognition of farmers' work.

- Marcel's interview

Marcel, 26, a technician and fourth-generation coffee grower, cultivates 2.5 hectares and exports 83% of his 900 kg production mainly through Juan Pablo and another exporter. While he feels fairly paid when exporting, he notes that most non-exporting farmers, particularly older ones, receive low compensation. Valuing organic production for its environmental and market benefits, he sees PGS as a trust-based, peer-supervised model and is willing to dedicate three hours weekly, promoting constant communication and knowledge exchange. He supports committees of committed, knowledgeable producers, welcomes expert advice that respects farmer autonomy, and advocates expulsion for non-compliance. Keeping detailed records to ensure traceability, he highlights cost control challenges, calls for fewer intermediaries, and hopes consumers value the effort behind each coffee cup.

- Maria’s interview

María, a coffee grower since 1967, manages four hectares sustaining ten households, now focusing on administration while exporting through her nephew, Juan Pablo. She sees workers as fairly paid but notes minimal returns for landowners after costs. Though never formally certified, she values organic farming, previously using livestock compost, and is open to Participatory Guarantee Systems (PGS), relating them to her past experience in local grower groups with farm visits and peer learning. Supportive of community-led initiatives and external collaboration, she does not keep records and expresses concern over younger generations’ declining interest in coffee farming.

- Mauricio’s interview

Mauricio, a high school graduate and coffee farmer since age 16, manages 8,000 trees and has exported through Juan Pablo for 6 to 7 years, feeling fairly compensated via this channel but criticizing the Coffee Growers Federation for unfair pricing and profit concentration. A former participant in the Nestlé-supported Amanecer del Mayo certification, he now works independently, values organic farming for its quality and environmental benefits, but sees profitability as the main barrier to adoption. Supportive of Participatory Guarantee Systems (PGS) for their livelihood and quality benefits, he is willing to dedicate time weekly, advocates inclusive governance, and supports enforcing shared rules despite social ties. He keeps informal records, welcomes external technical support, and calls for fairer prices and greater consumer appreciation of the work and traceability behind each bean.

- Mesias Interview

Mesias, a 45-year coffee grower with primary education, cultivates one hectare with about 7,000 plants, producing 3,000–4,000 kg annually, all sold to the federation. A former Nespresso-certified producer, he values certification for improving practices and potentially prices, and supports organic production for its quality and cost benefits. He sees Participatory Guarantee Systems (PGS) as feasible, is willing to dedicate two to three hours weekly, and values peer visits for mutual learning. He believes motivated, knowledgeable farmers should serve on committees, welcomes external advisors, and prefers rule enforcement through group discussion. Although he keeps no records, he is open to training and support. His main wish is for all coffee to be grown with organic fertilisers to lower costs and improve quality, and for consumers to appreciate the exceptional coffee produced in his region.

- Miguel interview

Miguel Bolaños Gómez, 57, a university-educated coffee farmer with 25 years of experience, cultivates 1.5 hectares producing about 3,500 kg annually, all sold through the federation despite past participation in Nespresso certification. Critical of low and unfair prices, he values organic production for its quality and environmental benefits, using on-farm inputs for over seven years. As leader of the Asociación Engeno in Nariño, representing 30 coffee-farming families, he supports PGS as a low-cost, farmer-led alternative that fosters quality, market access, and knowledge exchange, and is willing to dedicate time to meetings, training, and inspections. He advocates youth involvement in decision-making, welcomes university and international collaboration, and keeps detailed production and expense records. Calling for fairer prices and stronger recognition of smallholder efforts, he invites buyers to visit and witness the biodiversity, microclimates, and dedication behind their high-quality coffee.

- Duval interview

Duval, 36, a high school educated coffee farmer with 15 years of experience, cultivates 2,000 trees without certification or export experience and considers current prices barely sufficient to cover costs. While open to organic farming, he values certifications for adding product worth and strongly supports PGS for their shared responsibility and community governance. Willing to commit time to inspections and meetings, he favours trusted peers for committee roles, welcomes external advisors, and recognises the importance of informal knowledge exchange. Though he keeps no formal records, he roughly tracks costs post-harvest and seeks support to improve bookkeeping, ultimately advocating for more flexible sales systems and greater consumer appreciation of farmers’ efforts.

- Penedo’s interview

Penedo, a 67-year-old coffee farmer with 40 years of experience, cultivates 10,000 trees over 3 hectares. Though his formal education is limited, he has engaged in certification (e.g., Starbucks) and small-scale export. He believes current prices are unfair, with intermediaries exploiting farmers. He also supports certification and PGS as ways to improve quality and ensure fairer pricing. He uses minimal chemical inputs and is open to organic practices. Willing to invest time in PGS and share knowledge, he also values community-led governance and external advice. While he keeps basic records, he needs help with digital bookkeeping and urges buyers to understand the effort behind coffee production.

- Silviana’s interview

Silvania Botina, 44, a nursing assistant with a technical degree, has cultivated coffee since childhood and now manages 1.5 hectares with 4,000 trees, holding certification through a local growers’ group. She views current coffee payments as unfair and sees only minimal price benefits from certification, though she values organic production for its health, taste, and environmental advantages. Supportive of PGS for their collective oversight and quality assurance, she is willing to dedicate as much time as needed, prioritises knowledge exchange, and believes committees should be led by informed, organised members. She welcomes external advisors when they provide genuine learning opportunities, stresses training for rule compliance, and recognises potential interpersonal conflicts in inspections. Keeping detailed production and financial records, she calls for better pay, greater recognition, and stronger training for smallholders, emphasising that her work is done with care to produce high-quality coffee that sustains local families.

- Wueimer’s interview

Wueimer, 54, a high school graduate with 20 years of coffee-growing experience, cultivates 3,000 trees - most newly planted - and sells locally without certification or export experience. He views current prices as unfair, with intermediaries capturing most profits, and believes certification could improve prices by reducing middlemen. Open to organic production but still using chemicals, he supports Participatory Guarantee Systems (PGS) for their potential to secure better prices, strengthen community collaboration, and promote knowledge exchange. Willing to dedicate time to meetings and inspections, he advocates trusted peers for committees, welcomes external advisors, and supports sanctions or impartial inspections to ensure rule compliance. Though he keeps no records, he is interested in learning bookkeeping and calls for a fairer, more direct coffee trade

8.2.2. Fairtrade Netherlands Interview

Fairtrade Netherlands had no prior knowledge of Participatory Guarantee Systems (PGS). Fairtrade operates a top-down certification model, but is unique in being 50% owned by farmers and workers, giving producers real decision-making power. Due to the high cost of certification, Fairtrade only works with organised producers in cooperatives. Farm size may influence eligibility, and small-scale farmers (ex: coffee, cocoa) must be part of a certified cooperative. Individual plantations are certified in some sectors (ex: tea, flowers), with benefits going directly to workers. Certification covers the entire supply chain, including traders and exporters.

Fairtrade guarantees a minimum price and a non-negotiable Fairtrade premium, paid to the cooperative. An additional organic premium also applies. Fairtrade aims to increase the producer share of retail prices - in cocoa, for example, farmers receive ~5%, while retailers receive ~42%. Cooperatives provide bargaining power and choose their own buyers. They manage the Fairtrade premium, typically allocating ~30% as cash payments to farmers and ~70% to collective investments (ex: infrastructure, education). Fairtrade encourages long-term commitment, trust, and stability in the supply chain.

Compared to other schemes which offer no guaranteed price or premium, Fairtrade provides stronger protections and shared governance. Local teams (ex: 30 staff in Côte d'Ivoire) offer on-the-ground support to producers. Standards are generally consistent, though there are product-specific variations. Fairtrade cooperatives often have strong organisational structures, helping to tackle issues such as child labour and deforestation. Compliance checks are conducted in the 1st, 3rd, and 6th years of certification.

8.2.3. PGS Risaralda Interview

We highlight the following crucial points of discussion in the interview with Juan Sebastian Barrera:

The interview with Juan Sebastián Barrera Montealegre, researcher at the Technical University of Pereira, provides valuable insights into the origins, evolution, and current functioning of Participatory Guarantee Systems (PGS) in Risaralda, Colombia. Barrera begins by situating PGS within the broader policy landscape, noting that they were formally recognized under Colombia's Decree 331 on agroecology, which has stimulated new projects and government interest in supporting agroecological production. This framework also includes provisions for the use of native, and open-pollinated seeds, underscoring the alignment between state policy and grassroots initiatives.

Juan Sebastian's professional background is rooted in the Environmental Management Center of the university, where he has worked on agroecology and food sovereignty since 2010. His role is not only academic but also political, as he engages with the National Network of Family Agriculture to promote laws that strengthen agroecological practices. Within this context, PGS emerged as a practical and political alternative to conventional certification schemes, responding to the need for more accessible and community-driven systems.

The origins of the Risaralda PGS can be traced back to the creation of a local agroecological market in 2010. By the following year, participants recognized the need for mechanisms to ensure credibility, as other markets had begun misusing the "agroecological" label. To design their system, local actors drew on experiences from Cauca and Antioquia regions, adapting existing models to their needs. In 2012, a large socialization process was organized involving multiple stakeholders, including schools, consumers, and civil society organizations. An agreement was reached between stakeholders, establishing a one-year transition period during which producers had to eliminate chemical inputs. The PGS officially took shape in 2013, with the creation of a verification questionnaire and participatory farm visits, which farmers found transparent and effective.

Initially, only eight producers were certified, but the system has since expanded to 72 members, covering products such as cacao, coffee, sugarcane, and seeds. Certification is based on peer visits conducted by experienced producers, who evaluate environmental management, farm practices, waste handling, and use of inputs, among other factors. These visits emphasize dialogue, transparency, and knowledge exchange rather than top-down inspection. Decisions are discussed collectively in monthly meetings, where producers receive feedback, recommendations, and, if approved, the right to use a virtual PGS stamp. An annual assembly provides space for reflection, discussion, and the issuing of physical certificates.

Over time, the PGS has also expanded its market presence. While sales initially concentrated at the university market, producers now access multiple outlets, including other local markets and universities, which accept PGS-certified members directly. This diversification has improved commercialization opportunities and inspired similar initiatives elsewhere. The university continues to play a significant role, acting as technical secretary and offering institutional support, though there has been a deliberate push in recent years toward greater autonomy. Local young leaders have begun assuming responsibility for management, ensuring sustainability and independence while also exploring possibilities for export markets.

The membership process involves several stages: producers first submit a request and preliminary form, which is followed by training and farm visits conducted by experienced peers. The cost of visits, particularly transportation, is partially subsidized by local institutions, though producers contribute a small fee. Recommendations are typically provided during the process, with a focus on continuous improvement. Farms are revisited every two years to ensure compliance. Members who violate agroecological principles, especially by using agrochemicals, can lose their certification, as demonstrated by past cases where producers were excluded.

Governance within the PGS is organized through committees formed at the annual assembly, including training and verification groups. The training committee, composed of university staff and volunteer producers, organizes workshops in areas identified as weak, such as composting or crop planning. Verification groups, on the other hand, are responsible for certification decisions, given that not all members can attend each farm visit. These committees function on a voluntary basis, with no monetary compensation, though they receive institutional backing for logistical costs and benefit from the collective strengthening of practices.

Despite recognition under national policy, Barrera emphasizes that PGS is still a “work in progress.” Full institutional integration remains limited, and recognition often depends on direct agreements with buyers. Nevertheless, significant progress has been made in the area of public procurement, where local authorities are increasingly considering purchases from family agriculture and PGS-certified producers. This development signals a gradual but important shift toward broader institutional support. Looking forward, Barrera highlights the potential for export markets, pointing to successful experiences such as carbon-neutral coffee from El Cairo, Valle, which demonstrates the possibilities for PGS-certified products to access international buyers.

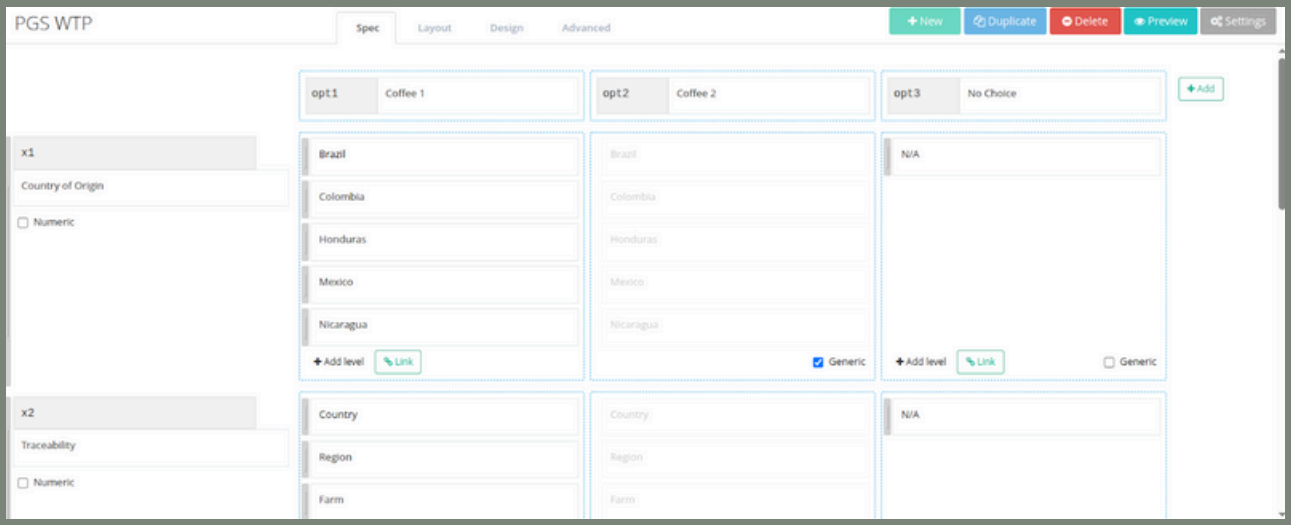
In summary, Barrera’s account illustrates how the Risaralda PGS has evolved from a local market initiative into a structured, community-driven certification system that balances farmer participation, consumer trust, and institutional support. Its growth reflects both the challenges and opportunities of embedding agroecological principles within Colombia’s agricultural and policy landscape, as it continues moving toward greater independence and broader recognition.

8.3. SURVEY QUESTIONS

8.3.1 Awareness of Certification Systems
8.3.2 Familiarity and Perception of Participatory Guarantee Systems (PGS)
8.3.3 Values and Preferences in Coffee Consumption
8.3.4 Trust and Credibility in Certification Systems
8.3.5 Purchase Behavior and Intention
8.3.6 Perception of Fair Distribution in the Coffee Supply Chain
8.3.7 Demographic Question: Gender
8.3.8 Demographic Question: Age

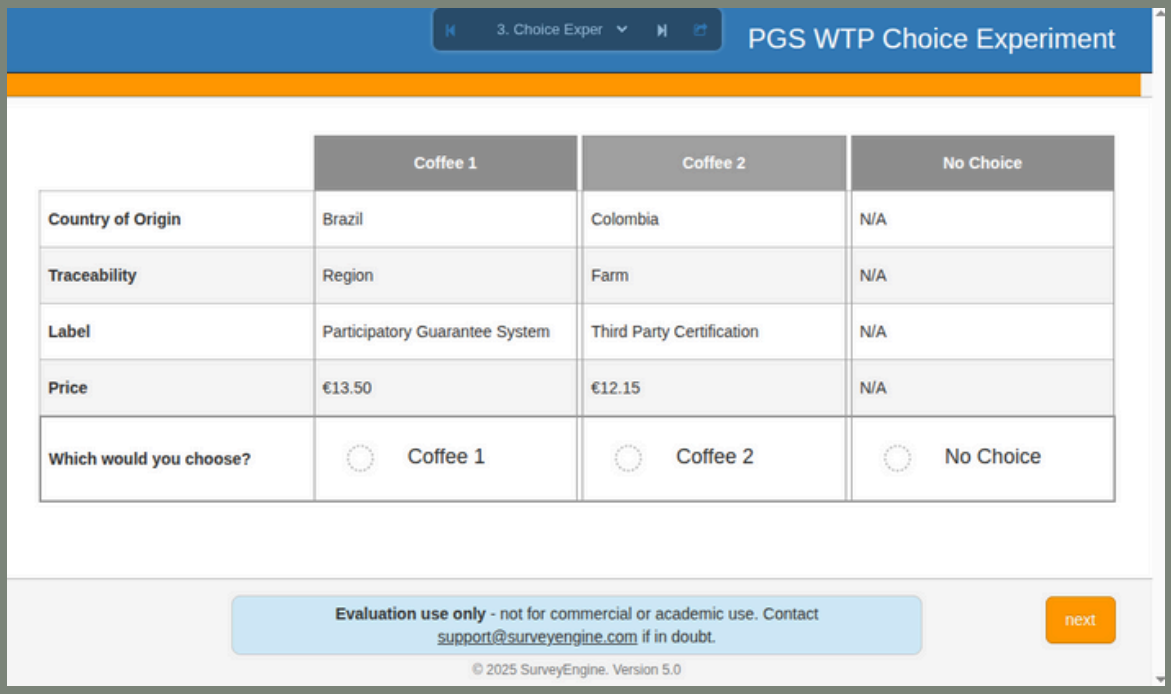
8.4 WILLINGNESS TO PAY PLATFORM

The WTP experiment was designed and executed through the platform Survey Engine. Survey Engine is a software that supports the design, deployment and analysis of preference studies. Users can create choice experiments by selecting a custom amount of attributes and values whether categorical or continuous.



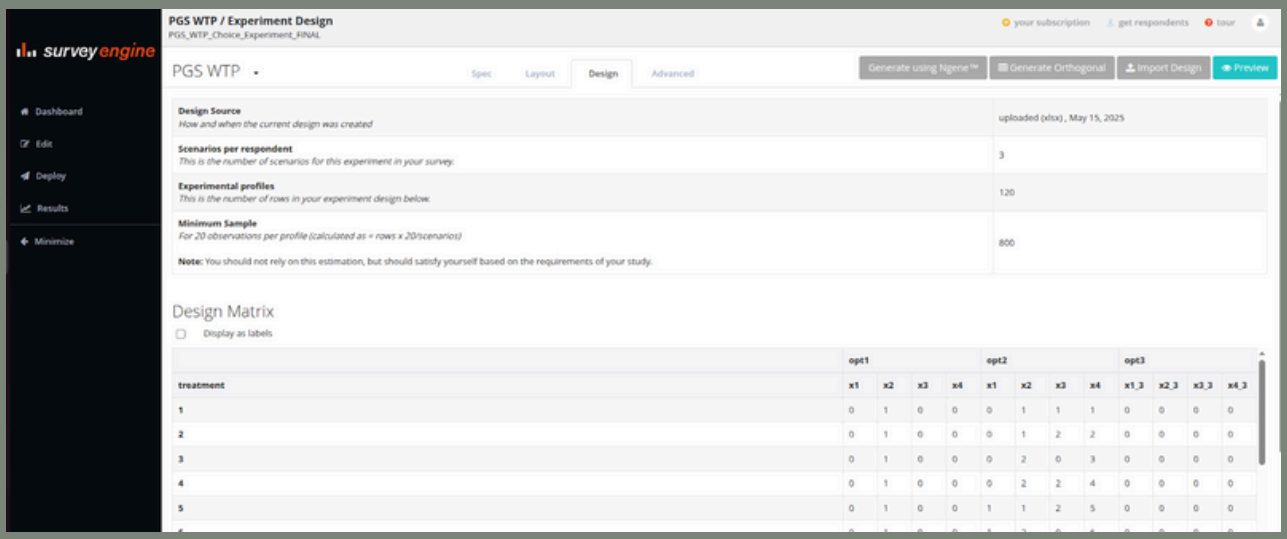
Choice experiments are composed of options with different attributes and values customizable by the user.

In a choice experiment configuration, respondents are presented with a set of alternatives with different attribute values they may choose their preferred choice of. For this report's WTP experiment a no option choice was included for all respondents.



Respondents' view of WTP set of alternatives. Respondents can choose between coffee 1, coffee 2 or no choice before moving on to the next set of alternatives.

A total of 120 alternatives were configured in the platform. These alternatives are representative of real market values and have a unique combination of values.



8.5. FINANCIAL & ECONOMIC ANALYSIS

Unitary Assumptions

	Unit Cost	UoM
Initial Organic Investment	208,33	€/1000 trees
Organic fertilizer cost	123,82	€/1000 trees
Chemical fertilizer cost	263,39	€/1000 trees
Minimum wage	1,86 €	€
Inspection	2	hs
Committee Participation	2	hs
Travelling	3	hs
Training	2	hs

Assumptions

Immediate PGS adoption
Time costs incurred
Premium Increase
No Volume increase

Baseline		Delta	**Scenario #1**		**Comments**
Hectares	2	0%	Hectares	2	*No volume increase*
Trees/ha	5000		Trees/ha	5000	
yield/ha	4000		yield/ha	4000	*No changes in yield*
Quantity, fruit (in kg)	8000		Quantity, fruit (in kg)	8000	
fruit-to-bean conversion	17%	-5%	*fruit-to-bean conversion*	12%	*Higher quality standards*
Quantity, bean	1360		Quantity, bean	960	
Export Price (eur)	5,0 €	20%	*Export Price (eur)*	6,0 €	*Price premium*
Operating Revenue	6 800 €		Operating Revenue	5 760 €	
Variable costs (labor)	3 740 €		Variable costs (labor)	-3 456 €	
% of gross revenue	55%	5%	*% of gross revenue*	60%	*Higher labor intensity*
Other operating expenses	2 955 €		Other operating expenses	-1 864 €	
Fertilizer (80%/20%)	2 355 €		*Fertilizer (80%/20%)*	-1 238 €	
Chemical-Organic mix	80%	-80%	*Chemical-Organic mix*	0%	*Shifting entirely to organic*
Maintenance and utilities	500 €	5%	*Maintenance and utilities*	-525 €	*Inflationary adjustments*
Taxes and other	100 €	1%	*Taxes and other*	-101 €	
Total Expenses	6 695 €		Total Expenses	-5 320 €	
Net result	105 €		Net result	440 €	
Net margin	1,5%		*Net margin*	7,6%	
			Time Investment	-63,3 €	
			Inspections / year	3	
			Committee meetings / year	3	
			Travel required / year	6	
			Training / year	2	
			Organic Investment	-1 667 €	
			Payback period	4,4	

Assumptions
Immediate PGS adoption
Time costs incurred
No Premium Increase
Volume increase

Baseline		Delta	Scenario #2		Comments
Hectares	2	20%	Hectares	2,4	*Volume increase*
Trees/ha	5000		Trees/ha	5000	
yield/ha	4000		yield/ha	4000	*No changes in yield*
Quantity, fruit (in kg)	8000		Quantity, fruit (in kg)	9600	
fruit-to-bean conversion	17%	-5%	*fruit-to-bean conversion*	12%	*Higher quality standards*
Quantity, bean	1360		Quantity, bean	1152	
Export Price (eur)	5,0 €		*Export Price (eur)*	5,0 €	*No price premium increase*
Operating Revenue	6 800 €		Operating Revenue	5 760 €	
Variable costs (labor)	3 740 €		Variable costs (labor)	-3 456 €	
% of gross revenue	55%	5%	*% of gross revenue*	60%	*Higher labor intensity*
Other operating expenses	2 955 €		Other operating expenses	-2 112 €	
Fertilizer (80%/20%)	2 355 €		*Fertilizer (80%/20%)*	-1 486 €	
Chemical-Organic mix	80%	-80%	*Chemical-Organic mix*	0%	*Shifting entirely to organic*
Maintenance and utilities	500 €	5%	*Maintenance and utilities*	-525 €	*Inflationary adjustments*
Taxes and other	100 €	1%	*Taxes and other*	-101 €	
Total Expenses	6 695 €		Total Expenses	-5 568 €	
Net result	105 €		Net result	192 €	
Net margin	1,5%		*Net margin*	3,3%	
			Time Investment	-63,3 €	
			Inspections / year	3	
			Committee meetings / year	3	
			Travel required / year	6	
			Training / year	2	
			Organic Investment	-2 000 €	
			Payback period	15,5	

Sensitivity Matrix: no PGS

Labor intensity

105,2 €	55%	56%	57%	58%	59%	60%	61%	62%	63%	64%	65%
4,5 €	-201	-262	-323	-384	-446	-507	-568	-629	-690	-752	-813
4,6 €	-140	-202	-265	-327	-390	-452	-515	-577	-640	-703	-765
4,7 €	-78	-142	-206	-270	-334	-398	-462	-526	-590	-654	-718
4,8 €	-17	-82	-148	-213	-278	-344	-409	-474	-539	-605	-670
4,9 €	44	-23	-89	-156	-223	-289	-356	-422	-489	-556	-622
5,0 €	105	37	-31	-99	-167	-235	-303	-371	-439	-507	-575
5,1 €	166	97	28	-42	-111	-180	-250	-319	-388	-458	-527
5,2 €	228	157	86	15	-55	-126	-197	-267	-338	-409	-480
5,3 €	289	217	145	73	1	-72	-144	-216	-288	-360	-432
5,4 €	350	277	203	130	56	-17	-91	-164	-237	-311	-384
5,5 €	411	336	262	187	112	37	-38	-112	-187	-262	-337

Price

Sensitivity Matrix: PGS in Scenario 1

Labor Intensity

440 €	55%	56%	57%	58%	59%	60%	61%	62%	63%	64%	65%
5,0 €	296	248	200	152	104	56	8	-40	-88	-136	-184
5,1 €	339	290	241	192	143	94	45	-4	-53	-102	-151
5,2 €	382	332	282	232	183	133	83	33	-17	-67	-117
5,3 €	425	375	324	273	222	171	120	69	18	-33	-83
5,4 €	469	417	365	313	261	209	158	106	54	2	-50
5,5 €	512	459	406	353	301	248	195	142	89	37	-16
5,6 €	555	501	447	394	340	286	232	179	125	71	17
5,7 €	598	543	489	434	379	325	270	215	160	106	51
5,8 €	641	586	530	474	419	363	307	252	196	140	85
5,9 €	685	628	571	515	458	401	345	288	231	175	118
6,0 €	728	670	613	555	497	440	382	325	267	209	152

Price

Sensitivity Matrix: PGS in Scenario 2

Labor Intensity

192 €	55%	56%	57%	58%	59%	60%	61%	62%	63%	64%	65%
5,0 €	480	423	365	307	250	192	135	77	19	-38	-96
5,1 €	532	473	414	356	297	238	179	121	62	3	-56
5,2 €	584	524	464	404	344	284	224	165	105	45	-15
5,3 €	636	575	514	453	391	330	269	208	147	86	25
5,4 €	688	625	563	501	439	376	314	252	190	128	65
5,5 €	739	676	613	549	486	423	359	296	232	169	106
5,6 €	791	727	662	598	533	469	404	340	275	211	146
5,7 €	843	777	712	646	580	515	449	383	318	252	186
5,8 €	895	828	761	694	628	561	494	427	360	294	227
5,9 €	947	879	811	743	675	607	539	471	403	335	267
6,0 €	999	929	860	791	722	653	584	515	446	376	307

Price