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The benefits and challenges of participating in Participatory Guarantee Systems (PGS) initiatives following institutional formalization in Chile

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ABSTRACT

Participatory Guarantee Systems (PGS) provide an alternative certification system for smallholder organic farmers producing for the domestic market. Officially recognized in Chile since 2007, PGS certification has grown in momentum in recent years. We used semi-structured interviews, surveys and participant observations to shed light on the PGS movement in Chile and the respective governance framework. Our results indicate that after PGS formalization, Chilean PGS initiatives struggle to comply with wide-ranging administrative procedures similar to those requested for third-party certification (TPC). Furthermore, lacking resources among PGS initiatives inhibit the PGS movement from impacting the national discourse. We present two PGS initiatives and their organizational structures, exploring ‘who’ participate, ‘how’ participation occurs, and ‘what kind’ of participation takes place. Our results indicate that the interaction as well as the exchange of knowledge among PGS members is a central benefit perceived by PGS participants. However, regular PGS member participation is hindered by the required time investment, the distance that PGS members need to travel and the perceived lacking expertise they have.

KEYWORDS

Farmer organizations; Chile; organic certification; participation; non-participation; Participatory Guarantee Systems; PGS initiatives

Introduction

Approximately 80% of organic smallholder producers live in middle to low-income countries (Meinshausen et al., 2019). While the benefits to smallholder farmers of obtaining third-party certification (TPC) can be substantial, there are many constraints and risks associated with it (Barrett et al., 2001; Templer et al., 2018). If alternatives such as group certification were not an option (Meinshausen et al., 2019), the high costs and management burdens associated with TPC could serve as a deterrent to obtaining organic certification for many of these smallholder farmers (Albersmeier et al., 2009; Veldstra et al., 2014).

Latin America has been the birthplace of several alternative certification systems (Fonseca, 2004; Meinshausen et al., 2019). As one of the most striking alternatives to emerge out of Latin America,

Participatory Guarantee Systems (PGS) merit particular attention. Participatory Guarantee Systems are ‘locally focused quality assurance systems’ (IFOAM, 2008, p. 1) implementing organic verification through a ‘foundation of trust, social networks and knowledge exchange’ (IFOAM, 2018, p. 1). PGS initiatives rely on peer-review visits to conduct organic verification procedures, while promoting active stakeholder participation, social conformity and trust (Fonseca, 2004). As of October 2019, over 500,000 producers were involved in 223 PGS initiatives across 76 countries (Katto-Andrighetto et al., 2020). With the growing role that PGS plays as an alternative to third-party organic certification, there is a greater need to critically evaluate these alternative organic quality assurance systems and the producers who participate in them.

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The diverse possible benefits of PGS for local and national stakeholders have been widely presented (Bellante, 2017; Källander, 2008; May, 2008; Rikolto, 2018). Among other benefits, PGS systems are considered to be more adaptable to local realities (Kirchner, 2014; Nelson et al., 2016), to enhance knowledge exchange (Binder & Vogl, 2018; Bouagnimbeck, 2014; Home et al., 2017; Kirchner, 2014), to be less costly (Home et al., 2017; Zanasi et al., 2009) and to empower organic smallholder farmers (Binder & Vogl, 2018; Home et al., 2017). None the less, several overarching challenges have been identified in PGS initiatives. Without legal recognition, PGS initiatives are fragile (Binder & Vogl, 2018; Home et al., 2017; Kaufmann & Vogl, 2018; Nelson et al., 2016), many PGS initiatives depend on external support structures, such as NGOs or governmental institutions to support their development (Home et al., 2017; Montefrio & Johnson, 2019; Rosina Bara et al., 2017) and PGS members do not actively participate in the PGS (Bellante, 2017; Bouagnimbeck, 2014; Home et al., 2017; May, 2008).

Local actor participation has been linked to the success of regional development projects (Adhikari et al., 2016; Ahmadi et al., 2013; Uphoff, 1998). Regrettably, scientific literature has often led to misperceptions, as defining the terms under which participation occurs is often overlooked (Anggraeni et al., 2019; Cohen & Uphoff, 1980; White, 1996). It is crucial to note that participation cannot be viewed as a singular simplified action (Arnstein, 1969), but rather as a combination of activities that should be analysed separately in order to develop a holistic understanding (Uphoff, 1988). Therefore an empirical review of the dimensions 'who' 'what kind' and 'how' is fundamental to obtaining a comprehensive understanding of participation (Cohen & Uphoff, 1980; Cornwall, 2008; Kaufmann et al., 2020; Uphoff, 1988).

Chile is one of ten countries that recognizes PGS as an organic quality assurance system equivalent to TPC at a national level (Bussaca et al., 2020). After Brazil, Chile had the second largest number of PGS initiatives in Latin America in 2019 (Katto-Andrighetto et al., 2020). With a 114% increase in operational PGS initiatives from 2017 to 2018 and 233 producers certified through PGS initiatives in 2019 (Katto-Andrighetto et al., 2020), the Chilean PGS movement has received increasing international attention. However Chile has primarily been categorized as an export-orientated organic production milieu (Recabarren, 2020; Sahota, 2020), with an underdeveloped domestic organic market (Meyer-Höfer et al., 2015), low levels of

domestic organic consumption (Adasme Berríos et al., 2015), few organic market sites (located mainly in Santiago, Valparaíso and other central suburban areas) and offering low quantities of organic produce (Gaitán-Cremaschi et al., 2020; Meyer-Höfer et al., 2015; ODEPA, 2010). Yet, with a 28,4% increase of organically certified area from 2018–2019 (SAG, 2020), and a growing consumer demand for organic produce within Chile, the development of domestic organic markets has received increasing attention, becoming a national long-term development priority (ODEPA, 2010). Within this context, PGS initiatives stand in the centre of attention, as they could well contribute in revitalizing the local organic food market (Fonseca et al., 2008; IFOAM, 2018).

Chilean PGS initiatives have been highlighted as playing a fundamental role in providing organic products for the domestic market (Recabarren, 2020). Unfortunately, transforming Chile's national agro-political environment into one that promotes domestic agro-ecological smallholder farming has historically presented itself as a challenge (Altieri, 2010). Numerous authors have indicated the importance of smallholder Chilean farmers' participation in cooperatives and professional associations to overcome systemic barriers to commercialization (Berdegué, 2001; Boza & Jara-Rojas, 2018; Gaitán-Cremaschi et al., 2020; Berdegué Sacristán, 2001). Yet, non-collective behaviour (Murray, 1997), inadequate communication (Gaitán-Cremaschi et al., 2020) and low levels of association (ODEPA, 2010) among Chilean farmers groups have been identified as key weaknesses in the development of the Chilean organic market.

Similar to other countries, the full potential of Chilean PGS initiatives may not yet be fully exploited since deficient support structures and low participation inhibit their full functionality. Yet, only few scholars have carried out empirical research on the Chilean PGS movement and its participants (Gaitán-Cremaschi et al., 2020; Loconto & Hatanaka, 2018). We have attempted to close this gap by implementing the conceptual PGS framework presented by Kaufmann et al. (2020) on members of the PGS movement in Chile. Using semi-structured interviews, we firstly explored the PGS governance framework to understand the actors and their relationships with Chilean PGS initiatives. This first perspective aimed at understanding organizational structures, control organizations and support systems surrounding PGS initiatives in Chile. Secondly, through surveys conducted with members of two Chilean PGS case

studies, the *Asociación de Agricultores Orgánicos Tierra Viva A.G.* (Tierra Viva) and *Organización de Productores Orgánicos de Curacaví* (OPOC), we explored the dimensions 'what kind', 'who' and 'how' of Chilean PGS members participating in the activities of their respective PGS. Furthermore, we examined the perceived benefits and disadvantages of participation and/or non-participation. The second perspective aimed at providing a detailed depiction of participation at a PGS members level. The inclusion of these two research perspectives aimed at providing a systematic, in-depth depiction of PGS participation and the context in which it occurs. The results presented in this study will contribute to the understanding of the Chilean PGS movement, empirically shed light on PGS member participation in two Chilean PGS initiatives and contribute to empirical understanding of the global PGS movement.

Methods

The data presented in this study were collected in Chile between May 2019 and November 2019 in five data collection phases. During phase I (Table 1) in April 2019, the Chilean certification body registry (version 11/2018) of the national authority *Servicio Agrario y Ganadero* (SAG) was used to establish initial email contact with all Chilean PGS initiatives

listed in that record. The email asked for data (e.g. number of members, duration of existence, accessibility, etc.) on the PGS initiative that would subsequently allow the identification of case studies for further research. The response rate was low, with responses from just four PGS initiatives.

Between May and June 2019 (phase II), five key informant semi-structured interviews were conducted in Chile with PGS representatives [*Asociación de Agricultores Orgánicos Tierra Viva A.G. (Tierra Viva)*; *Organización de Productores Orgánicos de Curacaví* (OPOC); *Organización de Productores Orgánicos de Melipilla* (OPOMEL); *Asociación Gremial Agrobato, Sociedad de Agricultores Orgánicos del Valle del Aconcagua Ltda.*] with the aim of understanding the structures of the PGS initiatives and identifying additional PGS initiatives that could serve as case studies. Furthermore, six semi-structured interviews, were conducted with key informants who had in-depth institutional understanding to gain insight into the functions and institutions of the Chilean Ministry of Agriculture as well as other organizations relevant to the Chilean organic and PGS movement (*SAG, Tierra Viva, Ecoferia de la Reina, El Buen Campo, Feria Orgánica Ecoviva*).

Two PGS initiatives, OPOC and Tierra Viva, were selected for a survey of PGS members (phase IV) based on the feedback received in phase I and phase II. The selection criteria were: (i) being

Table 1. Data collection phases, research methods, sampling strategies and populations.

Phase	Method	Sampling strategy	Population	Selected PGS initiatives		Additional data points ^a	Total
				Tierra Viva	OPOC		
Phase I	Initial contact via email	Census	PGS representatives	1	1	12	14
	Literature review and documents analysis (organic farming laws, internal PGS regulations & PGS movement in Chile)	Purposive	–	–	–	–	–
Phase II	Key informant semi-structured interviews	Purposive	PGS representatives	1	1	3	5
	Key informant semi-structured interviews	Purposive	Key actors in the Chilean PGS movement	2	–	4	6
Phase III	Survey pre-tests	Purposive	PGS members	2	2	2 ^b	6
Phase IV	Surveys	Convenience (planned as census)	PGS members	10	9	–	19
Phase V	Key informant semi-structured interviews	Purposive	Key actors in the Chilean PGS movement	–	–	10	10
	Participant observation	Purposive	–	1	3	4	8

Abbreviations used: OPOC: Organización de Productores Orgánicos de Curacaví; ^aIn addition to the selected PGS initiatives; ^bDue to the small population sizes of both selected PGS initiatives, two additional member survey pre-tests were conducted with OPOMEL (Organización de Productores Orgánicos de Melipilla) (PGS) members as its organizational structure was identical to OPOC.

registered as a PGS initiative with the competent authority for at least one year, (ii) willingness to cooperate in the study, and (iii) access to the locations of the initiatives and their group activities. PGS members are defined in this study as all actors formally enrolled in the PGS initiative. The survey was pre-tested (Bernard, 2011) in phase III with members of Tierra Viva ($n = 2$), OPOC ($n = 2$) and OPOMEL ($n = 2$) to verify the appropriateness and wording of the questions. The PGS members' survey consisting of open-ended and closed questions was individually adapted to the internal structure and terminology of each of the respective PGS initiatives.

The PGS members survey was conducted in phase IV with $n = 19$ respondents from the two selected case studies between September 2019 and November 2019. All PGS members' surveys were completed (with percentages given in the results section: 100%: $n = 19$). While a census sampling strategy (Given, 2008) was initially implemented, seven PGS members surveys (Tierra Viva $n = 4$; OPOC $n = 3$) could not be completed due to social unrest in Chile in October 2019. The sampling strategy for the final PGS members survey sampling strategy implemented in phase IV represents therefore a convenience sampling strategy (Bernard, 2011).

Throughout phase V, ten additional semi-structured interviews with key actors (e.g. key institutions, additional PGS initiatives) were held between July 2019 and November 2019 to gain additional context and insight into the Chilean PGS movement and the associated governance framework (McGinnis, 2011). Social gatherings or events run by PGS initiatives and government institutions were documented in eight participant observation protocols (Bernard, 2011). Throughout July 2019 and November 2019, laws, internal PGS regulations and publicly available documents were studied to complement the data collected in phases II-V (Bernard, 2011; Newing et al., 2011).

Data collection instruments used throughout phases II-V were created following the analytical framework proposed by Kaufmann et al. (2020). Adapted from Cohen and Uphoff (1980), the analytical framework proposes four dimension to systematically study stakeholder participation (and non-participation) in PGS: 'what kind of participation' (e.g. decision making), 'how is participation occurring' (e.g. extent of participation), 'who participates', and 'participation for what'. These dimensions were assessed for the full range of activities and

participation possibilities available at each PGS initiative. Semi-structured interviews and surveys furthermore included aspects of the 'context of participation' (e.g. governance framework) (Kaufmann et al., 2020). PGS member surveys were structured following the framework operationalization proposed by Kaufmann et al. (2020). Semi-structured interviews and surveys were administered in person by the first author and documented on paper and audio. PGS members were contacted via email, personal communications or telephone to participate in the study. The audio recordings of the semi-structured interviews as well as the conversations during the survey were transcribed.

Quantitative analysis and descriptive statistics were calculated with the software packages SPSS (IBM, v.24) and Excel (Microsoft 2016). A deductive codebook (Miles et al., 2014) was used, following the proposal of Kaufmann et al. (2020), to categorise PGS members' reasons for participating or not participating in each activity and the perceived benefits of participation or non-participation. In addition, evaluation coding was implemented to differentiate between positive-neutral and negative undertones (Miles et al., 2014). Semi-structured interviews were inductively coded (Miles et al., 2014).

The results are presented in three main sections. Firstly, we present the Chilean PGS governance framework as well as key issues associated with it. Secondly, the organizational structure of the two selected PGS initiatives is presented. Lastly, the results on participation in the committees and activities related to PGS initiatives are described. To guarantee the anonymity of the study participants, names have been anonymised through the use of codes. Details on the data collection sources and the respective phases are listed in the annex (Table A1). Throughout the text, the following source abbreviations are used: semi-structured interviews – 'I# year', survey pre-tests – 'PRE# year' and participant observation – 'PO# year'.

Results

Chilean PGS context – governance framework

Chilean PGS initiatives and their respective PGS members are intertwined within a wide range of institutions of the Ministry of Agriculture (Figure 1). PGS organic certification was formalized in 2007 through law N°20.089 (National Certification System for Organic Agricultural Products). PGS initiatives,

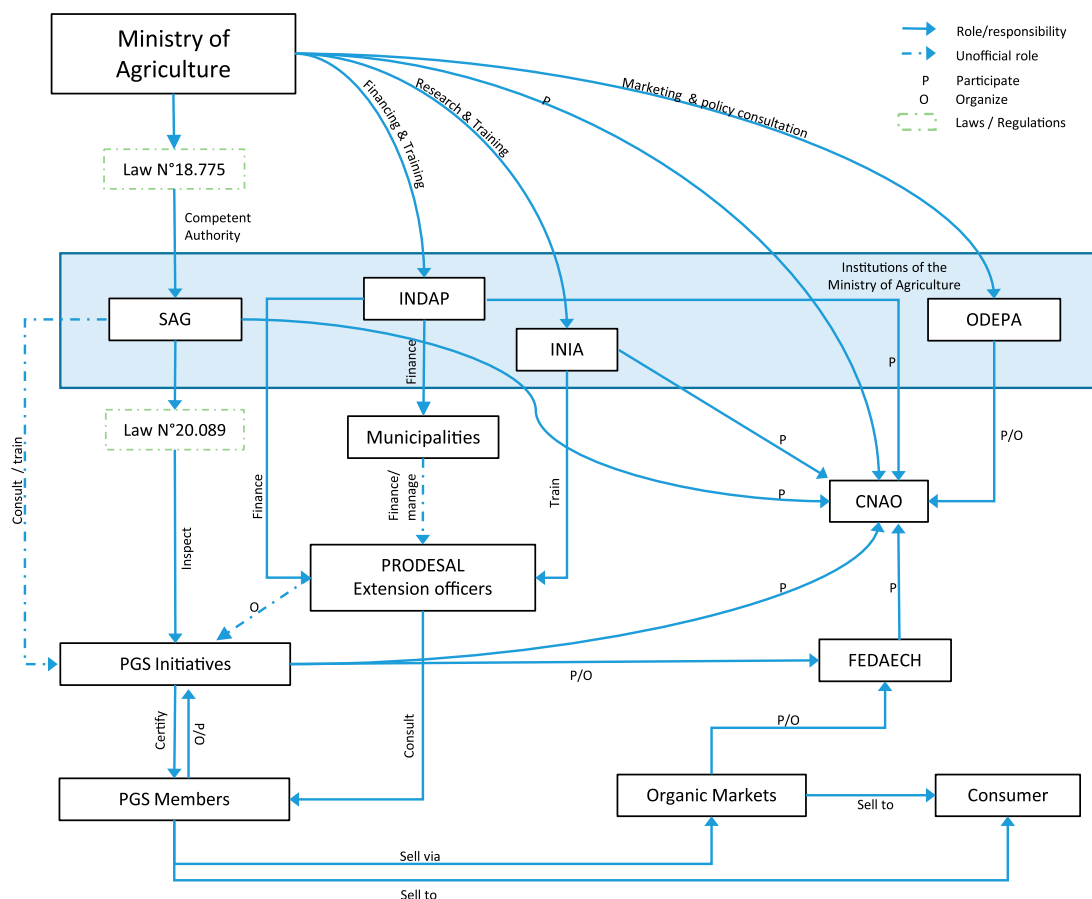


Figure 1. Governance framework and organizational arrangements of Chilean PGS initiatives, PGS members and related national institutions of the Ministry of Agriculture (source: own elaboration). Abbreviations used: SAG: Servicio Agrícola y Ganadero; INDAP: Instituto de Desarrollo Agropecuario; PRODESAL: Procedimientos Operativos del Programa de Desarrollo Local; INIA: Instituto Nacional de Investigación Agropecuaria; ODEPA: Oficina de Estudios y Políticas Agrarias; FEDAECH: Federación de Agroecología y Consumo Responsable de Chile; CNAO: Comisión Nacional de Agricultura Orgánica.

termed 'small ecological farmer [organizations]' (SAG, 2009, p. 3) are defined as 'organizations [sic] made up by small producers, families, farmers and natives with juridical personality whose annual sales do not exceed the equivalent to 25000 Index-Linked Units' (SAG, 2009, p. 3). Law N°18.775 names the *Servicio Agrícola y Ganadero* (SAG) as Chile's competent authority responsible for the enforcement and supervision of law N°20.089 as well as the complementary supreme decrees N°2/2016 (technical standard) and N°3/2016 (regulations).

Supreme decree N°3/2016 §5 defines the formal criteria that PGS initiatives need to comply with to be listed in the PGS registry. SAG regularly controls the PGS initiative internal control system and its implementation (I8 2019). During their controls, SAG

does not greatly differentiate on requirements instigated by law N° 20.089 on TPC and PGS initiatives (I1 2019; I3 2019).

The *Instituto de Desarrollo Agropecuario* (INDAP) is responsible for smallholder farmer financing and training. In cooperation with the local municipalities, INDAP co-finances the PRODESAL (*Procedimientos Operativos del Programa de Desarrollo Local*) programme and its respective extension officers, known as PRODESAL officers. Even though INDAP offers several support programmes for smallholder producers (I9 2019), the lack of institutional support provided by INDAP and received by PGS members was a common subject discussed in PGS initiatives (I11 2019; I8 2019; I3 2019). The insufficient focus on organic production (I9 2019) and selective INDAP

membership requirements result in PGS members falling through the established institutional support frameworks (PRE1 2019; I9 2019). Through the proactivity and personal motivation of individual PRODESAL officers, INDAP has indirectly promoted the formation of new PGS initiatives. The importance of PRODESAL officers and their potential in organizing smallholder farmers into new PGS initiatives is widely recognized (I1 2019; I6 2019; I2 2019; I8 2019). Individual employees of INIA (Instituto Nacional de Investigación Agropecuaria), the national agricultural research institute, have realized the benefits of the PRODESAL programme and dedicated resources to capacitating 70 PRODESAL officers in agroecology and organic agriculture management practices (I10 2019). Through this training, INIA is able to reach thousands of Chilean smallholder farmers who work with PRODESAL officers (I10 2019). In 2018, 25% ($n = 16$) of registered PGS initiatives were organized by, or in cooperation with, PRODESAL officers (SAG, 2018), with three additional PRODESAL officer initiated PGS initiatives in the process of entering the SAG registry (I8 2019). However, INDAP and their PRODESAL officers are dependent on the current government's plans and the priorities of the respective municipalities, making their lasting impact uncertain (I8 2019).

Administrative requirements, such as uploading producer information to an online database, was a problematic issue for PGS initiatives as they faced considerable technical difficulties with its execution and implementation (I8 2019; I10 2019; I3 2019; I2 2019). In addition to INDAP, SAG has given itself an additional role as a consulting and training service to support PGS initiatives (I8 2019; I11 2019; I6 2019). Support from SAG personnel was perceived as indispensable among PGS members to overcome formal organizational requirements (I2 2019; I10 2019; I6 2019; I11 2019). As mentioned in one interview:

It's a great achievement that the [PGS] groups are surviving in this environment, and much of that survival, we believe, is because we [SAG] gave ourselves a self-imposition to support them [PGS initiatives] although we are the ones overseeing them. (I8 2019)

The *Comisión Nacional de Agricultura Orgánica* (CNAO) has become a central exchange hub between private and public actors in the Chilean organic system. CNAO is organized by the *Oficina de Estudios y Políticas Agrarias* (ODEPA) which functions

as a marketing and policy consultation office between the Ministry of Agriculture and various private and public institutions (I7 2019; I6 2019). Several national institutions participate in the committees and meetings of CNAO. Organizations such as the *Federación de Agroecología y Consumo Responsable de Chile* (FEDAECH) are likewise able to articulate their needs to the respective public institutions (Meza, 2018).

FEDAECH, founded in 2017, is an agro-ecology umbrella organization, consisting of several organic grassroots organizations, that was created to strengthen the voice of its members in the national organic discourse (Meza, 2018; I5 2019). FEDAECH is also an information exchange network for PGS board of directors and other actors in the organic movement in Chile (PO1 2019). Through FEDAECH, PGS initiatives have the opportunity to participate in the national discourse on organic farming (I11 2019). Nevertheless, only members of the board of directors of the respective FEDAECH member organizations (PO1 2019) may participate. As these PGS members are constrained by their PGS board of directors' responsibilities, up-taking additional responsibilities within FEDAECH is not easily decided (PO1 2019).

To cope with the great distances within Chile and centralized institutional arrangements (I9 2019) government institutions work through regional offices called SEREMIS (*Secretarías Regionales Ministeriales*). Decentralized structures are also implemented within the CNAO, where regional task forces (i.e. *Comisiones Regionales de Agricultura Orgánica*) have been formed with the aim of strengthening coordination and effectiveness (I8 2019). Similar regionally decentralized structures have been implemented by FEDAECH (I5 2019; PO1 2019) and were being considered by members of the certification committee of Tierra Viva (I4 2019). However, these decentralized structures lead to additional coordination requirements, which in turn, under the current organizational arrangements, require additional time (I8 2019).

Selected PGS initiatives and organizational structures

Tierra Viva A.G.

Tierra Viva A.G. (Tierra Viva) was founded in 1993 (I3 2019) with the aim of unifying like-minded individuals (I5 2019) (Table 2). During the absence of any government regulation (pre-2006), Tierra Viva members

Table 2. Overview of the PGS initiatives included in the study.

PGS	Organizational type	PGS headquarters	Founded/ registered (year)	Members ^a	Certified producers ^a (Yes/Transition/No)
Tierra Viva A.G.	Union (Asociación gremial)	Municipalidad de Ñuñoa, Región Metropolitana de Santiago	1993/2008	16	13/3/0
Organización de Productores Orgánicos de Curacaví (OPOC)	Producer organization (Organización de Productores)	Comuna de Curacaví, Región Metropolitana de Santiago	2014/2017	15	3/3/9

^aNumbers as of 11.2019.

implemented foreign regulations to guarantee its members' agro-ecological production practices (I3 2019). Tierra Viva is widely recognized as a key PGS initiative in Chile and was the first certifier and first PGS initiative included into the PGS registry in 2008 (I5 2019; I6 2019; I1 2019). As described by one interviewee: Tierra Viva members '*understand the logic of organic production very well (...), they are probably the ones that have the greatest impact with their agro-ecological and organic foundations, because they were the first and they were here before the law was established*' (I8 2019).

Tierra Viva is organized through a board of directors (responsible for organization and decision implementation), a certification committee (responsible for organizing and taking certification decisions), and an inspection committee (responsible for the implementation of inspection committee visits). A recently established international relations committee was created as a networking platform to provide Tierra Viva members with opportunities for discussions on economics, knowledge and technology (I4 2019). Activities such as regular monthly meetings are held in Santiago during which members of the board of directors present general topics for discussion and decision-making (I3 2019).

Organización de Productores Orgánicos de Curacaví

Organización de Productores Orgánicos de Curacaví (OPOC) was established in 2014 by the local PRODESAL officer (I2 2019). The initial incentive came from the mayor of the city of Curacaví out of personal interest to produce organic eggs in the Curacaví region (I2 2019). Through the PRODESAL officer, and with the support of the regional SAG officer, OPOC was initially founded with 25 local producers and supported by a one-year FOSIS (*Fondo de Solidaridad e Inversión Social*) government subsidy aimed at building chicken coops and purchasing organic chicken feed (I2 2019). After the FOSIS funding ended in 2015, 24

members left the organization due to the lack of economic incentives (I2 2019). Following this, the PRODESAL officer re-formed OPOC with environmentally-aware members (I2 2019) and submitted in the PGS registry in 2017. OPOC's cooperation with the local PRODESAL officer has been taken as the benchmark for other groups interested in forming a PGS initiative (I8 2019).

OPOC is currently organized through a board of directors which, in addition to the organizational tasks, also takes on the responsibilities of the certification committee (I2 2019). Positions on the inspection committee, which plans and implements inspection committee visits, were filled by the PRODESAL officer (I2 2019). PGS meetings and assemblies are held in Curacaví, during which general topics are discussed and voted on (PO3 2019).

Participation of PGS members in PGS initiatives

Our results indicate that membership of both PGS initiatives was primarily sought by farmers initially to obtain organic certification and receive the associated economic benefits.

Participation in committees (board of directors, certification committee, inspection committee, international relations committee), organizing trainings, as well as in the regular meetings and assemblies within OPOC and Tierra Viva was open to all members (I2 2019; I3 2019). Between 2018 and 2019, Tierra Viva members participated in three separate committees and/or activities on average, and invested cumulatively around 73 hours (h) per year (a) (SD 54.8, min. 34 h/a, max. 380 h/a) while OPOC members participated in three different committees and/or activities on average and invested approximately 16 h/a (SD 7.8, min. 12 h/a, max. 179 h/a) (Table 3).

Table 3. PGS member participation (or non-participation) frequency average ($\bar{x}(f/a)$) and estimated time ($\bar{x}(h/a)$) invested in selected committees and activities of the PGS initiatives Tierra Viva and OPOC between 2018 and 2019.

		PGS committees and activities						
		Board of directors	Regular meetings	Assemblies	Certification committee	Inspection committee	Organizing training	International relations committee
Tierra Viva (<i>n</i> = 10)	Yes (<i>f</i>)	2	10	9	2	5	1	2
	$\bar{x}(f/a)$ [SD]	11 [5.6]	6.2 [2.7]	1	3 [1.4]	3.2 [1.64]	2	1
	$\bar{x}(h/a)$ [SD]	10 [0]	19.2 [15.3]	26.1 [29.6]	9 [1.4]	18.4 [11.7]	5	4 [0]
	No (<i>f</i>)	8	0	1	8	5	9	8
OPOC (<i>n</i> = 9)	Yes (<i>f</i>)	3 ^a	9	8	4 ^a	3	4	N/A
	$\bar{x}(f/a)$ [SD]	13.7 [3.2]	7.3 [5]	1	2 [1.2]	1.7 [0.6]	2.5 [0.6]	N/A
	$\bar{x}(h/a)$ [SD]	3.7 [0.6]	4.3 [1]	4.6 [0.9]	4 [0.8]	3.7 [0.6]	4.8 [2.5]	N/A
	No (<i>f</i>)	6	0	1	5	6	5	N/A

100%: *n* = 19; *f* = frequency participating in activities; *h* = hours, *a* = year; SD = sample standard deviation; \bar{x} = arithmetic mean; ^aThe board of directors and the certification committee personnel have overlapping duties.

A lack of available time to participate in PGS activities was noted as an inhibiting factor by 11 members across both PGS initiatives. The direct relationship between travel time and distance is especially relevant given Chile's geography. While in both PGS initiatives the travel times varied greatly, OPOC members were located closer to the initiative's headquarters than Tierra Viva members (Table 4). OPOC members (*n* = 9) near the municipality of Curacaví and the municipality of Melipilla primarily used private cars to travel to the PGS headquarters (*f* = 8, \bar{x} = 32 min.), with one member (*f* = 1, 90 min.) combining both private and public transport. Tierra Viva members (*n* = 10) living near the PGS headquarters in Santiago used private cars (*f* = 6, \bar{x} = 215 min.), while producers furthest away (*f* = 4) used public transport (*f* = 2, \bar{x} = 450 min.) or a mix of private and public transport (*f* = 2, \bar{x} = 690 min.) to attend PGS activities. Members of both PGS initiatives who attended regular meetings noted that their regular participation was hindered by the distances they needed to travel and/or time investment. Several PGS members who already had large PGS workloads were also very active in other organizations such as FEDAECH or the organic market Ecoferia de la Reina in Santiago.

In both PGS initiatives, members with comprehensive agricultural experience were sought to carry out inspection committee visits (I2 2019; I3 2019). OPOC implemented inspection committee visits biannually to verify both harvest cycles (I2 2019), while in Tierra Viva inspection committee visits were implemented annually in accordance with law no. 20.089 (I3 2019). While both PGS initiatives intended for the inspection committee visits to have several members, most inspections occurred with just one member of the inspection committee (I2 2019; I4 2019). On occasion, as in the case of Tierra Viva, individual inspectors were sent on their own to reduce the inspection costs for more remote members (I3 2019; I4 2019) or, in the case of OPOC, because of a lack of participation by other PGS members in the inspection committee (I2 2019). The OPOC board of directors had started overlapping the tasks of the board of directors and the inspection committee to decrease the dependency on a single PRODESAL officer (PO2 2019).

The main benefit of participating in assemblies and regular meetings for both PGS initiatives was considered to be interaction with others. The relationship between PGS members in both initiatives was considered primarily as 'good' (52%), 'very good' (26%)

Table 4. PGS member demographics of Tierra Viva and OPOC.

PGS	PGS study sample size ^a	\bar{x} production site size (ha) [SD]	\bar{x} years of PGS membership ^b (a) [SD]	\bar{x} time to the PGS meeting place (min) [SD]
Tierra Viva	10	12.6 [26.32] (<i>n</i> = 9 ^c)	6.0 [6.2] (<i>n</i> = 10)	357 [277] (<i>n</i> = 10)
OPOC	9	14.6 [12.83] (<i>n</i> = 8 ^d)	2.5 [1.6] (<i>n</i> = 9)	38.33 [25.5] (<i>n</i> = 9)

100%: *n* = 19; ^aTotal sample excludes the respective pre-test; ^bas of 11.2019; ^cApiarists and ^dnon-producers excluded; ha = hectare; \bar{x} = arithmetic mean; SD = sample standard deviation; a = year.

or 'regular' (21%). Yet, the difficulties experienced within OPOC, for example, after having to confront members with non-conformities uncovered during a SAG control inspection, cause imbalances and distrust between certain members (PO3 2019). Nevertheless, the level of trust PGS members had in the organic production quality of their peers was answered by 'completely' (47%), 'high' (42%) or 'moderate' (11%).

Long-time participating PGS members showed a profound personal involvement in the PGS movement (PRE2 2019; PO1 2019), as noted by one OPOC member: '[OPOC] is like a child, creating this [OPOC] is like a child. A child that you support. In the end you leave him, you taught him, he learned, he grew, but you are still there for anything' (PRE2 2019), indicating that the balance between PGS members personal lives and being available for the initiative can present a challenge.

Results from our PGS member survey indicated that a general exchange of knowledge during the assemblies and regular meetings was the most frequent associated benefit for participating members. Members participating in assemblies, the certification committee and the inspection committee specifically noted that they benefited from additional knowledge about organic agriculture practices. As one OPOC participant noted in a critical evaluation: '*they [OPOC members] are actually smallholder farmers eager to learn and transfer information*'. The majority of surveyed members ($f = 15$) of both PGS initiatives indicated that their knowledge of organic agriculture had increased thanks to their participation in the PGS ['very high' (13%), 'high' (47%), 'moderately' (40%); (100%: $f = 15$)], while 'no knowledge increase' was perceived by four members.

Overall, 57% of participants of the members' survey across both PGS initiatives indicated that they would like to participate in PGS activities more, preferably in the inspection committee and in regular meetings. Although many PGS members did not perceive any benefit or disadvantage from non-participation in the certification committee or the board of directors, some PGS members noted that missing out on opportunities for an exchange of knowledge about organic agriculture management strategies was a key disadvantage of not participating in the inspection committee. Participation in the PGS board of directors or organizing trainings was hampered by a perception of the expertise required. Furthermore, in both PGS initiatives the short membership time of participants (Table 4) was

indicated as one factor that hindered participation in the certification committee, the board of directors and the organization of trainings.

Income increases were not experienced by 63% of PGS members interviewed. No common marketing arrangements had been implemented by the two Chilean PGS initiatives. For OPOC as a producer organization, commercialization was restricted as it did not have the necessary organizational structure to be allowed to make an organizational profit (I2 2019). Tierra Viva, as a union, had initially managed the only organic market in Chile, yet after other larger markets opened (i.e. *Ecoferia de la Reina* in Santiago and *Feria Orgánica Ecoviva* in Valparaiso) the Tierra Viva market closed down because managing it alongside the PGS initiative proved difficult (I3 2019). Tierra Viva producers now play a large role in the development and structure of *Ecoferia de la Reina* in Santiago (I12 2019). While the lack of a joint marketing scheme may explain the income results of OPOC members, where only three members had organic certification, Tierra Viva members, where 13 members were certified, noted that factors such as market fluctuations had a greater impact on personal income dynamics.

Discussion

Governance framework

Although obtaining national legal recognition is no longer an issue (Binder & Vogl, 2018; Fonseca, 2004; López Cifuentes et al., 2018; Nelson et al., 2016) for Chilean PGS initiatives, difficulties arise when having to implement formal procedures similar to those requested for TPC. Administrative procedures, completed within TPC by paid employees, have to be implemented by PGS members in their own time, partially with own resources and with little or no expertise or support. While in other countries, NGOs have been seen to play a role in the development of PGS initiatives (Home et al., 2017; Kaufmann & Vogl, 2018; Zanasi et al., 2009), in Chile, individual PRODESAL officers have taken on this support responsibility. Our results support findings indicating the various benefits offered by INDAP's PRODESAL programme to smallholder Chilean farmers and farmers' organizations (Berdegué, 2001; Boza & Jara-Rojas, 2018; Challies & Murray, 2011). Nevertheless, as the PRODESAL programme is politically and financially tied to INDAP and the respective municipality, it is unable

to guarantee long-term commitment to the PGS initiatives. It would seem pertinent to consider PRO-DESAL officers' independence as a strategy towards the long-term sustainable PGS development in Chile.

External, facilitated support, either through private or institutional arrangements, has been essential for overcoming the hurdles faced at initiative level and guaranteeing that farmer organizations continue to operate (Ashby et al., 2009; Fawaz-Yissi et al., 2012; Home & Nelson, 2015; Reed, 2008). Gaitán-Cremaschi et al. (2020) emphasize the importance of a Chilean public institutional support systems for individual farmers. Our results offer similar indications, as the formal responsibilities that Chilean PGS initiatives have to follow are perceived to be complex and require time and resources. Without institutional support, such as through SAG or individual PRODESAL officers, the progress of newly established PGS initiatives would probably be severely hampered. However, institutional support of this kind can be resource intensive and may prevent other central institutional duties from being performed (Mutersbaugh et al., 2005) as well as lead to state-induced technical support dependencies (Challies & Murray, 2011) and conflicts of interest. Similar to the results presented from Mexico (Home et al., 2017), the initial member reorganization of OPOC underlines the argument of Kaufmann and Vogl (2018) of incorrectly targeted PGS funding and that support strategies may only bear fruit while they are available. External financial support for PGS requires long-term planning as well as a strategy of what to do when funding ends. In the long run, PGS members with experience and personal incentives, such as within Tierra Viva, provide a firm foundation for PGS initiatives.

Similar to the Ecovida Agroecology Network in Brazil (Niederle et al., 2020), the role of FEDAECH as a link between organic organizations, PGS initiatives and government institutions has the potential to contribute to the national discourse as it could amplify the voices of the many organic farmers they represent (Nelson et al., 2010). Yet sufficient resources are not available among PGS members to contribute to FEDAECH as these members are already under pressure through their participation in their respective PGS committees and activities. Supporting the results of Jaime and Salazar (2011), we also observed that participating in several organizations simultaneously may be counterproductive and lead to inter-organizational inefficiencies. Gaitán-Cremaschi et al. (2020) furthermore indicated that internal

conflict and lack of communication between representatives of the initiatives has been an inhibiting factor in the advancement of FEDAECH. The wider impact of the Chilean PGS movement, such as observed with the Ecovida Agroecology Network in Brazil (Niederle et al., 2020) and the extent to which FEDAECH contributes to, and has an impact on, the national discourse while representing the Chilean organic movement (Meza, 2018) is yet to be observed.

Participation

The reasons for participation in a PGS initiative have frequently been attributed to increased price premiums due to the opportunity to sell organically-certified products (Bellante, 2017; Bouagnimbeck, 2014; Fonseca et al., 2008). Our results contribute to the above-mentioned literature, indicating that most PGS members initially participated in the PGS initiatives to obtain price premiums for their products. Yet, in contrast to other comparable studies (Bellante, 2017; Bouagnimbeck, 2014; Kaufmann & Vogl, 2018), no common PGS commercialization scheme has been implemented by the two Chilean PGS initiatives. Our results suggest that amid the lack of a common PGS marketing strategy and a majority of members not seeing any income increases, Chilean PGS members are shifting the aim of their participation to benefit from the exchange of knowledge that occurs within the organization. With the participation in grassroots networks like FEDAECH, Chilean PGS members are furthermore able to contribute to local knowledge exchange and partake in mutual capacity building (Gaitán-Cremaschi et al., 2020). Exchange of knowledge between farmers have been widely highlighted as a distinct benefit of participating in PGS activities (Binder & Vogl, 2018; Hirata et al., 2019; Home et al., 2017; Kirchner, 2014) and has a valuable role in upholding the initiative.

Similar to the results presented in other PGS studies (Kaufmann & Vogl, 2018; Nelson et al., 2010; Nelson et al., 2016) participation in Chilean PGS initiative activities, such as within the board of directors or organizing training activities, was hindered by members' perception that specific expertise was required. For highly technical activities, it is not enough to provide opportunities for participation without first educating members (Challies & Murray, 2011; Reed, 2008). The long-term success of PGS initiatives may well lie in the hands of PGS member training (Binder & Vogl, 2018), since access to

information can be a key promoter in activating participation (Gyau et al., 2016; Peterson, 2011).

The perceived sense of community among members of farmers' associations has been noted as a central benefit resulting from participation (Bellante, 2017; Home et al., 2017; López Cifuentes et al., 2018; Mutersbaugh et al., 2005; Uphoff, 1988). The sense of community, also noted by PGS members of the two PGS initiatives studied, is strongly influenced by the type of structure and hierarchy implemented by the initiatives. As observed by Chaparro-Africano and Naranjo (2020), increased participation in PGS activities, may also lead to establishing profounder trust basis among PGS members. The flat hierarchies in both studied PGS initiatives reflect the hierarchies observed in other PGS initiatives (López Cifuentes et al., 2018). Studies have reinforced the finding that flat hierarchies (Abatena, 1997; Padilla Bravo et al., 2012; Reed, 2008) and strong social cohesion (Zanasi et al., 2009) are beneficial to organizations when dealing with non-compliance situations, as members are able to discuss their thoughts and fears and progress as a group towards a common identity (Montefrio & Johnson, 2019).

The challenges of implementing inspections at regular intervals (Kaufmann & Vogl, 2018; Nelson et al., 2010) were not observed in Chile. This may be attributed to SAG's annual review of PGS initiatives and their members' compliance following PGS formalization through law no. 20.089. Nonetheless, reflecting observations in the literature (Home & Nelson, 2015; Kaufmann & Vogl, 2018), dealing with incidents of non-compliance proves to be a similarly arduous task for Chilean PGS initiatives. In accordance with the key PGS principles proposed by IFOAM (2007), Chilean PGS members show great trust in the organic production quality of their colleagues even though few people take part in the inspection visits. Trust has been considered to be the foundation on which PGS activities are built (Nelson et al., 2016; Zanasi et al., 2009). Yet with little or no expertise or training in carrying out inspections, trust is shattered when the PGS initiative is confronted with a participant's non-compliance.

A lack of time to participate in PGS activities reflected the barriers to participation presented in several comparable studies (Binder & Vogl, 2018; Chaparro-Africano & Naranjo, 2020; Kaufmann & Vogl, 2018; López Cifuentes et al., 2018). The time required to participate in activities – especially when travel time is included – was often a barrier to additional

participation among PGS members. The negative role of distance in inhibiting member participation reflected the results presented by Carter-Leal et al. (2018). For PGS members with less distance to travel, the average time invested by the PGS inspection committees was similar to times reported for organic TPC inspection visits in Finland (Seppänen & Helenius, 2004). Yet organic inspections of more distant PGS members sometimes required several days to complete. Decentralization of PGS structures has been seen as a strongpoint in other PGS movements, such as the PGS Ecovida in Brazil (Niederle et al., 2020; Rover et al., 2017; Zanasi et al., 2009). Implementing such decentralized PGS structures that establish local marketing possibilities and more opportunities to participate in knowledge exchange activities could well be a viable solution to overcome time constraints and non-participation in Chile.

Regarding the unequal workload distribution among PGS members, similar observations to López Cifuentes et al. (2018) and Rosina Bara et al. (2017) were made within both Chilean PGS initiatives. In OPOC in particular, the workload undertaken by the PRODESAL officer was crucial to upholding the general structure and performing time and resource-intensive tasks such as inspections. Yet to achieve a balance and decrease dependence on individual members, redistributing the responsibilities of the PRODESAL officer to other OPOC members could provide them with the necessary experience in the long run to carry out inspection committee tasks independently (Nelson et al., 2010). Furthermore, this redistribution of responsibilities would provide PGS initiatives such as OPOC the possibility of departing away from an organizational arrangement with resounding similarities to a group certification scheme.

Concluding remarks

Our study has shed light on a section of Chile's PGS movement by examining two PGS initiatives and the governance framework in which they operate. We illustrate PGS member's motivations and the benefits or disadvantages of participation and/or non-participation in PGS activities. Our results contribute in quantifying and contextualizing the time and participation frequency that is required for PGS members to partake in activities and committees of the PGS. Whilst the methodology proposed by Kaufmann et al. (2020) proved to be useful in illustrating participation, it did not consider participation in

activities outside of official PGS events (i.e. private and/or local meetings). This leads us to believe that the actual time participated in the initiative may be greater than presented in our results.

Through an in-depth analysis of participation, we have shown that Chilean PGS members benefit from being in the PGS beyond mere organic certification. Chilean PGS initiatives provide members with a network with whom to exchange knowledge. However, lacking time, experience and perceived expertise to participate in the committees and activities of PGS initiatives may well hinder overall participation and prevent exploitation of the movement's potential. Our study furthermore contributes to the ongoing discussion about the importance and associated risks presented by government institutions and support structures in maintaining PGS initiatives. The results presented in this study give a novel and profound insight into 'who', 'how' and 'what kind' of participation, a pivotal principal of PGS, occurs.

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Annex

Table A1. List of source codes, date and type of data collection.

Code	Institution/Organization	Data collection Phase	Date	Type of data collection
11	Servicio Agrícola y Ganadero (SAG)	Phase II	05.2019	Semi-structured interview
12	Organización de Productores Orgánicos de Curacaví (OPOC)	Phase II	05.2019	Semi-structured interview
13	Tierra Viva A.G.	Phase II	05.2019	Semi-structured interview
14	Tierra Viva A.G.	Phase II	06.2019	Semi-structured interview
15	Tierra Viva A.G.	Phase II	06.2019	Semi-structured interview
16	Organización de Productores Orgánicos de Melipilla (OPOMEL)	Phase V	06.2019	Semi-structured interview
17	Oficina de Estudios y Políticas Agrarias (ODEPA)	Phase V	08.2019	Semi-structured interview
18	Servicio Agrícola y Ganadero (SAG)	Phase V	08.2019	Semi-structured interview
19	Instituto de Desarrollo Agropecuario (INDAP)	Phase V	09.2019	Semi-structured interview
110	Instituto Nacional de Investigación agropecuaria (INIA)	Phase V	11.2019	Semi-structured interview
111	Cooperativa Campesina de Producción Orgánica Valle del Aconcagua (COORGANICA)	Phase V	08.2019	Semi-structured interview
112	Ecoferia de la Reina	Phase V	11.2019	Semi-structured interview
PRE1	Tierra Viva A.G.	Phase III	10.2019	Survey pre-test
PRE2	Organización de Productores Orgánicos de Curacaví (OPOC)	Phase III	10.2019	Survey pre-test
PO1	Federación de Agroecología y Consumo Responsable de Chile (FEDAECH). annual assembly	Phase V	07.2019	Participant observation
PO2	Participatory inspection by the Organización de Productores Orgánicos de Curacaví (OPOC)	Phase V	09.2019	Participant observation
PO3	Assembly by the Organización de Productores Orgánicos de Curacaví (OPOC)	Phase V	08.2019	Participant observation