



Common property regimes in participatory guarantee systems (PGS): Sharing responsibility in the collective management of organic labels

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ABSTRACT

Participatory Guarantee Systems (PGS) are certification schemes, which offer a guarantee that labelled products comply with a related quality standard. They differ from the prevailing Third-Party Certification (TPC) because in a PGS, food system stakeholders are involved in the decision to award a label. With TPC, a single certification body takes the decision and certification costs may be too high to be borne by smallholder producers. According to PGS guidelines (IFOAM, 2019), shared rights to actively contribute to the inspections, participate in exclusion decisions for certification and to manage the contents of the standard are key features of a PGS. Producers have significantly more rights on the label in a PGS than in TPC. Each PGS has a specific governance structure, which reflects how they have adapted to their respective institutional environments. In this paper, we compare the distribution of power in TPC for the European organic label and four PGS, Nature & Progrès (N&P) in France; Ecovida Agroecology Network (EAN) in Brazil; Certified Naturally Grown (CNG) in the US; and Kilimo Hai (KH) in Tanzania. Drawing on the bundle of rights concept developed by Schlager and Ostrom (1992), we discuss how the common property regimes in PGS have potential for bridging the gap between organic labels and their users. We describe each governance structure, by drawing on data from in-depth interviews with key informants and on the analysis of framework documents and regulatory texts specific to each initiative. We show that the distribution of stakeholders' rights varies considerably between the different PGS. Similar to the commons, these differences can impact the label's legitimacy, the PGS members' involvement and mobilization, and the effectiveness of the rules relating to implementation and compliance.

1. Introduction

Organic agriculture has been one of the most popular food labels for many years. The global organic sector is now growing in terms of farmland, volumes produced and organic producers (FiBL and IFOAM, 2021). In 2019, 108 countries had organic regulations, and 3.1 million producers were certified organic (FiBL Statistics, 2021). The price of organic products is generally higher than that of conventional products, which is usually justified by higher production costs (labour costs are higher when chemicals are not used) and positive externalities perceived by the consumer with regard to the environment and health (Seufert and Ramankutty, 2017).

It is commonly argued that organic food products are credence goods, whose socio-environmental quality is difficult to assess ex-post (Darby and Karni, 1973). Indeed, consumption alone cannot guarantee whether a product is environmentally friendly. To address this issue of

credence goods, control ex-ante and information flow mechanisms ensure that the actors in the supply chain are reliable (Lohr, 1998; Meijboom et al., 2006) through certification and labelling. Certification systems guarantee that a product complies with a related quality standard, which consists in a set of production rules and specifications. The label appears as a protected logo and/or name which allows for product differentiation and guides consumers (Lohr, 1998).

Currently, the dominant guarantee system in the world is Third-Party Certification (TPC), whereby a producer is inspected and certified as "organic" by an independent body. However, this market-based method for certifying and managing organic labels has disadvantages, including cumbersome bureaucratic procedures and high financial costs (de Lima et al., 2021). In contrast, Participatory Guarantee Systems (PGS) represent a different less expensive institutional form for certification. They are based on peer review and shared responsibility. They also involve knowledge sharing among participants and common ownership

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of the label (Home et al., 2017; Sacchi et al., 2015). PGS are becoming increasingly popular, particularly in low-income countries, where smallholders may struggle to pay the costs for TPC. In 2020, over 1.1 M producers were certified through PGS worldwide (FiBL and IFOAM, 2021). However, PGS also have limitations. They are based on a collective management of the organic label, which implies not only establishing an inclusive governance for certification processes, but also for managing the contents of the standard, and a set of collective activities. Though the involvement of different actors may vary according to the ownership of the label, mobilizing members to participate in this collective management is essential, but often a source of difficulties (Home et al., 2017; Kaufmann et al., 2020).

In this paper, we draw on the theoretical framework of the bundles of rights from Schlager and Ostrom (1992, 2007) to investigate how various property rights existing in the collective management of PGS have potential for developing a closer linkage between organic labels and their users. The bundles of rights framework has been applied to study common resource governance issues in different fields, including: wetlands and fisheries (Ahmed et al., 2008; Chomba and Nkhata, 2016; Iglesias-Malvido et al., 2002), forest management (Andersson et al., 2015; Dorji et al., 2006; Hlaing et al., 2013), urban green spaces (Colding et al., 2013; Colding and Barthel, 2013), urban land allocation (Liu et al., 2019) and radio bandwidth (Iordachescu, 2015). Every case study highlights the importance of rights and duties to involve a resource user in the management of the resource. Although the framework has been adapted theoretically to knowledge commons (Hess and Ostrom, 2007), very few empirical works have applied it to real case studies.

In this article, we hope to contribute to the literature, to the extent that labels can be analysed as intellectual resources, some of which are managed within knowledge commons (Mazé, 2017; Lemeilleur and Sermage, 2020). We consider PGS as common property regimes for the management of organic labels. Doing so, we intend to shed light on the distribution of rights within this common property regime and their impact on how users collectively manage a knowledge resource. While various PGS have emerged spontaneously in many countries, the way they operate varies according to context. We explore their characteristics, how they allocate rights and duties, their modes of governance, and the place of peers in their structural development. We then discuss the linkage between users and organic labels, the motivation of peers to get involved in their collective management and the potential sustainability of PGS.

We studied four PGS around the world: Nature & Progrès (N&P) in France, Ecovida Agroecology Network (EAN) in Brazil, Certified Naturally Grown (CNG) in the US and Kilimo Hai (KH) in Tanzania. Each one is over ten years old, has more than 500 PGS-certified producers, operates in very different geographical areas and has different property regimes. We analyse the distribution of rights between producer members (peers), non-producer members, PGS employees, and external actors who provide support for the two main tasks involved in the collective management of an organic label: the certification campaign, whereby the organic label may be attributed to a farm; and revision of standards, whereby the production rules related to the label may be modified. The case studies were based on semi-structured interviews with PGS administrators and members of supporting NGOs, and an analysis of the corresponding legal documents, and confronted to the governance of TPC organic certification according to the ISO 17065 standard and based on the example of the public European label (EU) 2018/848.

The rest of the paper is organized as follows. First, we provide a general comparison of the construction of TPC versus participatory guarantee systems in terms of ownership regimes. Second, we describe the bundle of rights theory for a knowledge resource, which we used to analyse our case studies. Third, we present the four case studies and the methods we used to collect and analyse data. Fourth, we present the results of our analysis in terms of the diversity of property rights, as a key

driver for stakeholder participation in PGS activities. We discuss how the polycentric and inclusive governance of PGS can facilitate the management of organic labels, by adapting them to local needs and specificities, and to their respective institutional environments. In conclusion, we summarize the major insights presented in the paper.

2. Empirical motivation

2.1. Third-party certification as a private property regime

Following the growth in demand for organic products and the extension of distribution channels, many states have legislated to improve the definition of organic agriculture and provide reliable guarantees that producers will respect their commitments. The gradual institutionalization of the organic sector in Europe and the United States has led to the development of TPC by Certification Bodies (CB) (Fouilleux and Loconto, 2017; Poméon et al., 2017). CB develop their own inspection plan for a standard, which must be approved by the standard's owner – public approval bodies in the case of EU 2018/848. TPC operate in accordance with the ISO 17065 standard criteria of neutrality, independence and efficiency, and they are accredited for this purpose. The efficiency of the dominant TPC system is underpinned by the principles of scientific objectivity, organizational independence, and competition among certifiers (Lytton, 2014). The rapid expansion of TPC is linked to its fast decision-making mechanisms. TPC has certainly contributed to the development of organic agriculture worldwide through a fundamentally market-based model (Guthman, 2004; Poméon et al., 2017), in line with the globalization of the agribusiness sector (McMichael, 2009).

Nonetheless, TPC has many shortcomings (Fouilleux and Loconto, 2017; Osmundsen et al., 2020). First, TPC involves cumbersome bureaucratic procedures and high financial costs. The latter are largely borne by producers (Loconto, 2017; Nelson et al., 2015) and greatly handicap traditional diversified production systems (Buck et al., 1997; Roure, 2007). Producers who cannot afford the costs of certification are excluded from the market, which limits organic certification in low-income countries to crops dedicated to export (Lundberg and Moberg, 2009; Niederle et al., 2020). Even with third-party group certification based on Internal Control Systems (ICS), the involvement of producers in the governance of both the certification process and the standard contents is highly limited, which generates a risk of mismatch between their contents and the socio-ecosystemic conditions of organic production (Lemeilleur et al., 2015). Lastly, the commodification of labels and the industrialization of the organic sector reflect the spread of an ideology which is not shared by all the actors in the system (Guthman, 2004; Nelson et al., 2015). Organic labels have become a tool, which powerful actors use to influence trade dynamics. Consequently, the organic production requirements of wealthy countries disregard the local conditions in the countries from which they import food (Pekdemir, 2018).

The limitations of this system are the focus of growing criticism, which has pushed organic stakeholders to develop inclusive non-market alternatives (Fouilleux and Loconto, 2017; Lemeilleur and Allaire, 2018). This has led to the development of other formal guarantee systems, such as participatory guarantee systems (PGS) (Home et al., 2017; Sacchi et al., 2015).

2.2. Participatory guarantee systems as a common property regime

Participatory Guarantee Systems (PGS) are defined by the International Federation of Organic Agriculture Movements (IFOAM) as “Quality assurance systems that focus on local needs. They certify producers on the basis of active stakeholder participation and are built on a foundation of trust, social networks and knowledge exchange” (IFOAM, 2008). Control is not carried out by an independent inspector, but by peers (i.e. other certified producers). Other stakeholders (consumers, external experts, NGOs, representatives of public institutions, etc.) may also be involved

in assessment at different levels. This active participation implies full transparency in the food system. This strengthens trust among stakeholders and guarantees the credibility of the certification scheme (Cuéllar-Padilla and Ganuza-Fernandez, 2018). If non-compliance is observed during inspections, group members or coordinating bodies (secretariat, council, committee, etc.) may decide to impose sanctions horizontally (IFOAM, 2019). PGS typically lead to the emergence of local producer groups, which promote peer learning and the sharing of knowledge and resources among producers. This enhances their capacity building and improves the quality and quantity of their organic production. It also bridges the gap between producers and consumers (Home et al., 2017; Lemeilleur and Allaire, 2018), by creating new social dynamics within food systems.

Participatory certification represents a real paradigm shift compared to TPC because, unlike the latter, it considers that the more advice a producer receives to improve practices, the more likely the producer is to comply with the requirements and the vision of the standard (Lemeilleur et al., 2022). Some operating rules to avoid collusion risks (a producer cannot be inspected by the producer that they have inspected the same year (no reciprocity) or by the same inspectors 2 years in a row; inspection may involve non-producer member, etc. (Barrot et al., 2020; Lemeilleur and Sermage, 2020)) and social control guarantee the effectiveness of compliance with the standard. The successful development of a PGS depends primarily on active stakeholder participation, especially that of producers (Nelson et al., 2010).

PGS certification is based on a collaborative process, which strives to promote knowledge sharing, strengthen social links and empower individuals (Home et al., 2017). Inevitably, some individuals in a PGS are more committed than others. This can induce a risk of power capture, which may undermine collective action (Cuéllar-Padilla and Ganuza-Fernandez, 2018). In addition, collective action may be subject to free-riding issues, which can hinder stakeholder involvement (Olson, 1965). If collective action is to be sustainable, it must be regulated with adequate governance rules (Crawford and Ostrom, 2005). For example, property right regimes define the distribution of positions, rights and duties within a community of resource users. In this way, common property rights regimes frame and shape participatory activities, whereby responsibility is shared formally (Schlager and Ostrom, 1992). In the following section, we draw on the concept of bundle of rights, as a tool to analyse how rights and duties impact stakeholder involvement in PGS decision-making. We examine the extent of peer power with regard to different types of peer knowledge production in a context of adaptive collaborative management (Armitage et al., 2008; Benkler and Nissenbaum, 2006).

3. Theoretical framework – Property rights and knowledge resource management

Property rights regimes are key institutions for managing natural or cultural resources. They are associated with governance structures, which regulate human-resource interactions using norms and rules with enforcement mechanisms (North, 1990).

Although Ostrom underlined that all property regimes have some disadvantages, commons scholars have revealed how top-down state intervention and private property regimes may be inadequate for managing a collective resource, irrespective of whether the resource is natural or intellectual (Agrawal, 2003; Hess and Ostrom, 2007; Ostrom, 1990).

Regarding knowledge resources, the generalization of exclusive rights leads to a *tragedy of the anticommons* (Heller and Eisenberg, 1998): when exclusive rights are held by one party over a piece of knowledge, a discovery or information, its circulation is limited, which makes it inaccessible. As a result, the resource may be under-utilized or under-adapted as its content may suffer because of insufficient contributions. This situation could reduce general welfare. The management of knowledge resources is increasingly being privatized with the

development of intellectual property, which Boyle (2003) refers to as the second enclosure movement. In this context, greater attention should be given to intellectual property regimes.

Ostrom showed that most common-pool resources are managed under “mixed” ownership regimes, which combine individual and collective dimensions (Ostrom, 1990). To account for the diversity of these forms of common property, Schlager and Ostrom (1992) analyse property as a bundle of rights over the use of a resource associated to given positions ranging from *owner* to *authorised user* (Table 1). *Authorised users* only have access to operational level rights: rights to *access* the resource and to *withdraw/use* resource units. *Claimants* may additionally participate to the formulation of *collective choice rules* through their right to *manage*, i.e. to determine the rules and conditions of use of the resource. In turn, *proprietors* gain the right to *exclude*, i.e. to determine who benefits from operational rights; and *owners* have the right to *alienate*, i.e. to sell or transfer any collective choice right.

In order to facilitate the analysis of property-right regimes on intellectual resources, Hess and Ostrom (2007) introduced a new right of *contribution*, i.e. improve the resource and adapt its content. They also substituted the term *withdrawal* for *extraction*, as it was better suited to the use of intellectual resource artefacts. Accordingly, *Extraction right* is the term we use in the sections to come.

Schlager and Ostrom’s theoretical contribution highlights the idea that property is relative and can be shared. The bundle of rights framework allows us to envisage property rights regimes, which are shared within a community of resource users, but also between a community and public authorities (Orsi, 2013, 2015).

These rights may not be equally shared among the actors involved. This may lead to different degrees of dependence and willingness to invest in managing the resource. Agrawal (2003) argues that institutional choices made by powerful groups, who have a voice in decision-making, may be deliberately designed to disadvantage marginal and less powerful groups in order to maintain control. The link between power, status and access to resources is essential to a thorough understanding of collective management processes (Agrawal, 2003).

Empirically, Colding et al. show that horizontally shared management and exclusion rights foster community involvement and exchanges among its members, even in the case where a public authority holds the alienation right (Colding et al., 2013; Colding and Barthel, 2013).

Following on from these assertions, and considering organic labels as intellectual resources (Lemeilleur and Sermage, 2020), their management can be administered through various certification systems associated with specific property rights. Stakeholders have rights and duties that may be different depending on the action situations observed. Two main recurrent action situations have been identified regarding the governance of organic labels: the governance of the certification process; and the governance of the standard revision (Lemeilleur et al., 2022). Each action situation is framed by a specific bundle of rights as developed below (Table 2). In this paper, we have considered PGS as a common property regime and we will explore its variants through the case studies described in the next section, and TPC as a mixed property regime, involving governments, private parties and communities (Table 3).

Table 1
Property rights bundles associated with positions.

	Owner	Proprietor	Claimant	Authorized user
<i>Access</i>	X	X	X	X
<i>Withdrawal</i>	X	X	X	X
<i>Management</i>	X	X	X	
<i>Exclusion</i>	X	X		
<i>Alienation</i>	X			

Source: Schlager and Ostrom (1992).

Table 2
Property rights bundles in the governance of an organic label. .

Property right	Definition by Hess & Ostrom (2007)	AS1: Governance of the certification process	AS2: Governance of the standard revision
Access	The right to enter a defined physical area and enjoy nonsubtractive benefits.	The right to access the information provided by a label, in particular technical specifications with guidelines.	The right to access the information provided by a label, in particular technical specifications with guidelines. (Not relevant)
Extraction	The right to obtain resource units or products of a resource system.	The right to apply the label on their products and use its reputation for an added value.	
Contribution	The right to contribute to the content.	The right to participate to inspection to ensure the reliability of the label.	The right to provide knowledge and ideas for improving the standard and adapt it to its socio-ecosystem.
Management	The right to regulate internal use patterns and transform the resource by making improvements.	The right to organise inspections and to distribute information related to the certification process.	The right to make decisions on the content of the standard.
Exclusion	The right to determine who will have access, contribution and extraction rights and how those rights may be transferred.	The right to determine who will have extraction and contribution rights by deciding whether a farmer shall be certified or not.	The right to determine who will have contribution rights by deciding who is allowed to take part of the revision process.
Alienation	The right to sell or lease management and exclusion rights.	The right to delegate management and exclusion rights by appointing bodies responsible for inspection and certification.	The right to delegate management and exclusion rights by appointing bodies responsible for standard revision.

Source: Authors' creation based on Hess & Ostrom (2007)

4. Method

4.1. Data collection

In this research, we selected four well developed operational PGS initiatives for organic farming, which have been running for over 10 years, have gained recognition or were created with the support of the International Federation of Organic Agriculture Movements (IFOAM), and are in different geographic areas (two from the North and two from the South). The four contexts also differ in terms of their public authority recognition and the territory covered by their labels. The (EU) 2018/848

Table 3
Summary of the main characteristics of the case studies. .

Name	Date of creation	No. Producers	Geographic scope of the label diffusion	Ownership of standard	Label recognised by public authorities
Nature et Progrès (N&P)	1964	1300	Mainland France	Private	No
Ecovida (EAN)	1998	5600	Southern Brazil	Public	Yes
Certified Naturally Grown (CNG)	2002	750	US – Canada	Private	No
Kilimo Hai (KH)	2011	2000	Tanzania	Public	Yes
European organic label (EU 2018/848)	1992	340,000	EU	Public	Yes

Source: authors based on interviews and documentation presented in 4.1

was chosen as a counterfactual reference point, as it is amongst the most popular organic labels in the world since its creation in 1992, and its use is legally restricted to TPC schemes only. Though European TPC may be conducted entirely by public authorities – in which case a public control body is responsible for providing inspection and certification services – we decided to focus on private certification bodies, as this is the most common system.

Data on the governance structure of PGS was gathered from internal regulatory texts (charters, standards, regulations, etc.) and from available reports on each one: Nature & Progrès (N&P, 2021, 2013, 2000), Certified Naturally Grown (CNG, 2021, 2020), Ecovida (EAN, 2017; Govt of Brazil, 2007, 2003; MAPA, 2022, 2009), and Kilimo Hai (EAC, 2007; JMC, 2013; Katto-Andrighetto, 2013; SAT, 2020; Schwindenhhammer, 2016; TOAM, 2005; UNEP, 2010). Data regarding the governance of the EU organic label comes from official documents (EU Parliament, 2018; INAO, 2023). In addition, to refine the analysis of formal property rights with the *de facto* functioning of each organization, seven in-depth interviews were conducted between May 2021 and June 2022: N&P (2), CNG (1) and EAN (1). The Kilimo Hai PGS, however, was the subject of interviews with two administrators and five employees from supporting NGOs in order to compensate inconsistencies in available literature. On-site interviews were favoured when possible, but two interviews were performed remotely (CNG and EAN). Representatives having a long experience with their respective PGS were sought, ideally combining producer and administrator roles. The interviews also provided insights on the history of each PGS (presented in 4.2) and their respective dynamics.

4.2. Data analysis

The data collected during interviews was transcribed in writing and improved our understanding of the specific structures of each system. Indeed, each PGS is the product of successive adaptations to respective physical and institutional environments. Hence, we examine the pivotal role of PGS common property rights regimes because it may be the key to successfully combining producers' interests and the management of organic food systems.

For each action situation identified regarding the governance of an organic label – (AS1) certification process; and (AS2) revision of the standard— we identified the rights that each stakeholder has access to, depending on their positions. Once this structure was identified, a table was drawn up to list the bundles of rights corresponding to each action situation (Table 2). Similar to the paper by Colding et al. (2013), which compares ownership regimes in urban commons, this representation allowed us to highlight the differences between the various PGS considered in terms of horizontality and the distribution of decision-making powers.

4.3. Case studies

Nature et Progrès (N&P), in France, was created in 1964 to promote and disseminate organic farming methods and associated values that challenged the increasingly dominant agro-industrial paradigm. In

1972, the Civil Society Organization (CSO) drew up the first organic standard and awarded the first N&P label. In 1978, the producers set up a system of controls involving Commissions of Approval and Control (COMAC). This forms the basis of the participatory certification system still in place. However, the European legislation on organic farming put a brake on the CSO's development in 1995, by requiring TPC. Nonetheless, some members, who were keen to defend a social project that goes beyond the "mainstream organic", refused to comply with these requirements and continued the organization's activity (Niederle et al., 2020). N&P was recognized as a formal PGS by IFOAM in 2013. Today, the N&P Federation has 2,500 members (1,371 producers and almost as many non-producers) spread across mainland France. The association is organized on two levels. First, 35 local groups¹ bring together about thirty producers on average and as many consumers. This level is in charge of local advocacy to promote the label. It is also responsible for the local certification commission (local COMAC), which organizes farm inspections. Second, the national level includes the federal authorities, such as the General Assembly and Federal Council, and concerns the organization of the PGS and its political positioning. The federal certification commission (Federal COMAC) is responsible for coordinating the local COMAC and ensures that the N&P label is properly managed.

Ecovida Agroecology Network (EAN) was established in Brazil in 1998. It is a network of local organizations, which had been actively fighting agricultural industrialization since the 1980s. They decried conventional agriculture for being unsustainable and successfully developed innovations to support smallholders. In contrast to the market-driven logic of TPC, they created a participatory guarantee scheme adapted to small-scale producers. Their success won their public recognition and the acknowledgement of the validity of PGS certification by the government in 2007 (Lemeilleur et al., 2022; Niederle et al., 2020). Since 2009, to establish a PGS in Brazil, producers must comply with the national standard (Law 10.831) and a Participatory Conformity Assessment Body (PCAB) must be set up. This formally registered organization is accredited by public authorities as the legal warrant of the PGS control. It comprises an Assessment Commission and an Appeal Council, both made up of representatives of the PGS members. EAN has been registered as a PCAB since 2010 and officially recognised by IFOAM in 2013 and operates in Brazil's southern states. Producer members are organized into local groups. They are in charge of field inspections. They have links with civil society organizations (supporting NGOs, cooperatives, consumer associations, etc.) in 32 regional nuclei, which are in charge of certification approval. EAN is the umbrella for all the regional nuclei and is coordinated by representatives from the different states. Today, over 5,600 producers are certified through the EAN PGS.

Certified Naturally Grown (CNG) was founded by producers in New York's Hudson Valley in 2002. It began as a regional programme and has expanded to include the entire United States and four states in Canada. CNG is recognized as a legitimate PGS by IFOAM, but not by the US government authorities. Its production standards for crop production and animal husbandry are based on those of the national organic programme. In 2016, members set up their own certification programmes for aquaponics and mushrooms. CNG states that it does not seek to compete with TPC for public organic label. Instead, it aims to address the TPC system's shortcomings, by providing inclusive certification for smallholders. As an additional guarantee of the label, each CNG producer has a public online profile, which shows their location, application information and certification documents. CNG now includes more than 750 farms and apiaries across North America and only producers can be members. As it covers large territories with a low density of certified producers, most CNG producers are too far from each other to meet on a regular basis. Therefore, CNG does not have local groups. Nonetheless,

producers are in charge of field inspections and each year they choose a new producer to conduct the visits in their geographical area. Recently (following the Covid-19 pandemic), it has been possible to organize some inspections using a video link, but only under specific conditions. The PGS relies on a centralized structure for operational decision-making, rather than on a radically participatory approach. The organization has a top-down management structure: the previous board of directors appoints the new one, which in turn appoints the CEO, who then chooses the staff and advisory councils. Board members may be certified producers, but not necessarily. This mode of governance gives little power to producers in terms of the organization, but allows for efficient and rapid decision-making in a context where organizing collective discussions between isolated producers might be challenging. Most of CNG's day-to-day activities – including new member applications – are organized online and managed by staff.

Kilimo Hai (KH) is an international label managed in Tanzania by the Tanzania Organic Agriculture Movement (TOAM). The development of organic agriculture in East Africa relies mostly on the action of NGOs, which provide capacity building and training courses on organic practices for smallholders. In 2007, three countries in the East African Community (Kenya, Tanzania and Uganda, later joined by Burundi and Rwanda), adopted a regional organic standard, the East African Organic Product Standard (EAOPS). It is associated with the Kilimo Hai mark to boost the growth of the regional organic sector. In 2010, with the support of IFOAM, the OSEA II project was set up to develop PGS certification for Kilimo Hai. The first producer groups were established and certified in 2011. In Tanzania today, there are many local groups and over 2,000 certified producers. They apply the public organic standard with their own governance system, supported by various NGOs. Most PGS-certified groups have an average size of 25–30 producers. They all have the same basic governance structure: an executive board, a marketing committee, a production committee and an internal control/evaluation committee. They have full authority over their own governance, committees for oversight and monitoring of compliance with the standards. Every year they are accredited by TOAM, the umbrella organization.

5. Different common property regimes for the collective management of organic labels in participatory guarantee systems

We analyse the distribution of rights between producer members (peers), non-producer members, PGS employees, and external actors that support these organizations in two different action situations linked to the collective management of organic labels: certification of a producer (Table 4) and revision of the standard (Table 5).

Action situation 1: Bundles of property rights with regard to farmer certification

In all the initiatives studied, any farm in the territory concerned can apply for the label² (*access right*) (Table 4). Farm inspections must be carried out and producers who comply with the standards receive certificates of conformity which authorize them to use the label (*extraction*) for a given period (one or three years). These community inspections are the occasion for peers to exchange knowledge and to foster solidarity on overcoming compliance issues. In fact, most interviews with PGS actors reveal that the marketing incentive of the label is often secondary compared to the importance of sharing knowledge and building relationships of trust.

Within N&P in France, certification is based on community control supported by N&P employees. Local committees, which are made up of

¹ Local groups operate as independent associations and are free to choose their own operational rules.

² Individuals may apply, whether they own or rent the land, as long as they decide how their farm is managed. In certain cases (N&P, EAN), a cooperative may be allowed to use the label with a certification scheme close to a TPC group certification (Andrianarinosy and Lemeilleur, 2021).

Table 4
Bundle of rights of different PGS for certifying producers. .

Certification system	Participatory Guarantee Systems					Third-Party
Label	Nature & Progrès (N&P)	Ecovida Agroecology Network (EAN)	Certified Naturally Grown (CNG)	Kilimo Hai (KH)	2018/848 Organic label (EU)	
AS1: Certification campaign	<i>Access</i> <i>Extraction</i> <i>Contribution</i>	Anyone Certified producers All members + National PGS employees	Anyone Certified producers All members +Public authority	Anyone Certified producers All members	Anyone Certified producers Elected member + National PGS employees + External	Anyone Certified producers CB
	<i>Management</i>	All members	All members +Public authority	National PGS employees	All members + National PGS employees	CB
	<i>Exclusion</i>	Elected members	Elected members + Public authority	National PGS employees	All members	CB
	<i>Alienation</i>	Elected members	Public authority	Elected members	National PGS employees	Public authority

Producers are indicated in bold. [Certified producers] = rights held by certified producers. [All members] = rights held by producers and non-producer members. [Elected members] = elected representatives of all members in closed decision-making body. [National PGS Employees] = rights held by organization employees. [External] = rights held by a private external party. [Public authority] = rights held by public authorities. [CB] = rights held by third-party certification body. Source: authors

Table 5
Bundle of rights to modify standards in the different PGS. .

Certification system	Participatory Guarantee Systems					Third-Party
Label	Nature & Progrès (N&P)	Ecovida Agroecology Network (EAN)	Certified Naturally Grown (CNG)	Kilimo Hai (KH)	2018/848 Organic label (EU)	
Standard property regime	Community ownership	Public ownership (Brazil)	Community ownership	Public ownership (EAC)	Public ownership (EU)	
AS2: Revision of standard	<i>Access</i> <i>Contribution</i>	Anyone Elected members + External + Public authority	Anyone Certified producers + National PGS employees	Anyone National PGS employees + Public authority	Anyone Elected members + External + Public authority	
	<i>Management</i>	Elected members	Elected members	Public authority	Public authority	
	<i>Exclusion</i>	Elected members	Elected members	Public authority	Public authority	
	<i>Alienation</i>	Elected members	Elected members	Public authority	Public authority	

Producers are indicated in bold. [Certified producers] = rights held by certified producers. [All members] = rights held by producers and non-producer members. [Elected members] = elected representatives of all members in closed decision-making body. [National PGS employees] = rights held by organization employees. [External] = rights held by a private external party. [Public authority] = rights held by public authorities. Source: authors

all the members in a given area – producers and non-producers – assign or propose (*management*) two members (preferably a producer and a non-producer), to carry out farm inspections (*contribution*). Inspection reports are presented at a local committee meeting, where they can be discussed collectively with all members. For each farm, a group recommendation on the attribution of the label (which may include recommendations for corrective actions), is issued by consensus. It is sent to staff at the federal level, whose role is to validate the local decision if no anomalies have been observed. The employees supervise the administrative procedures and award farm certificates, but have no decision-making authority. When anomalies are found regarding the local decisions, the matter is referred to the Federal Committee, which includes representatives (producer and non-producers) of each local group. As such, although local committees and N&P employees have a central role in the decision-making – mainly through evaluation reports – (*management*), the Federal Committee ratifies the decision on whether to suspend certification (*exclusion*). Furthermore, the Federal Committee has the authority to approve new local committees. Doing so, it delegates its rights to manage the certification process at local scale

(*alienation*).

In the case of the EAN in Brazil, certification is based on community control and completed by random checks and accreditation of the PGS by public authorities.³ Peer visits are organized by the Ethics Commission in each local group (*management*), and conducted at least once a year by all local group members (*contribution*). In the case of non-compliance with the organic production standard, the group requests a verification visit by its Regional Nucleus Ethics Commission, which is composed of representatives from all the local groups in the area (*contribution*). The decisions regarding conformity and corrective measures are made by the Nucleus Ethics Commission (*exclusion*), in the light of information provided by the producer concerned and their local group. All Regional Nuclei share the same production norms and basic operational rules, which give EAN certification its coherence and legitimacy. According to the Brazilian legislation, in addition to PGS control, producers may be randomly checked by public inspectors (*contribution* and *management*). In the case of non-compliance, these checks can result in the withdrawal of a producer’s certificate (*exclusion*), but also the withdrawal of the public accreditation of EAN if members are found to

³ The Brazilian government does not have the capacity to maintain a permanent observation on the operations of its PGS. Therefore, the accreditation of EAN by public authorities mostly relies on documentation, similar to the accreditation of private certification bodies (Lemeilleur et al., 2022).

cheat repeatedly (*alienation*).

Within CNG in the US, certification is based on individual controls performed by employees. The applicant first has to provide information about their farm online, which is then checked and validated by an employee of CNG (*management*). The producer then contacts a peer – without repeated or reciprocal visits – in their area to conduct the inspection. If there is no certified producer of the same type within a short distance, the producer may use an outside observer, who must be approved by a CNG employee. At the end of the farm visit, the inspector sends a report (*contribution*) to the staff, who then review the farm's practices and inputs (*management*). Lastly, after reviewing the inspection reports, CNG employees award certification to the producer or not (*exclusion*). As an additional safeguard, CNG periodically conducts unannounced pesticide residue testing. All inspection reports and information on each producer are freely available online. In case of discontent, the board has the right to remove exclusion rights from its employees through dismissal (*alienation*).

With TOAM PGS in Tanzania, certification is based on community control and completed by random checks and accreditation by TOAM employees. Producer groups organize inspections within their own group. These are carried out by members' representatives according to their respective internal rules (*contribution, management*). The results are presented to all group members, including recommendations. An internal report is drafted. The group's internal control committee grants or refuses certification for the producers inspected (*exclusion*). The internal inspection reports are then sent to TOAM employees for review. An external evaluation is carried out by an inspector employed by TOAM, based on inspections of 20 % of the group's randomly selected farms (*contribution, management*). TOAM employees write a preliminary accreditation report, which is sent to the producer group and the local NGO supporting the group. The latter can appeal or clarify certain points (*contribution*). A final report including feedback is written, and the TOAM Programme Manager and CEO decide whether to grant accreditation to the whole group or not (*alienation*).

In the European organic TPC, a Certification Body (CB) is in charge of organizing and performing farm inspection (*contribution, management*), and based on the inspection the same CB decides to grant or not a certificate to the producer (*exclusion*). To obtain these rights and to sell their services, private CB must be approved and accredited by European public authorities (*alienation*).

Action situation 2: Property rights bundles with regards to revision of standards

In general, organic standards are posted online. Anyone can access, download and edit them for their members or community (*access*) (Table 5). However, although the 2007 version of the East African Organic Product Standard is freely accessible, its revised 2019 version must be purchased from related national bureaus of standards.

N&P has its own 15 production standards, depending on the products. It has been included in the IFOAM Family of Standards since 2011, but is not recognized by the French state. Most N&P rules of production are stricter than public organic regulations, particularly, with regard to herd size, closer links with the soil, proximity to the origin of inputs, and restrictions on the composition of processed products. In contrast to the EU organic standard, N&P producers are not permitted to produce conventional and organic products at the same time. To revise an existing standard or validate a new one, there are discussions between a commission of volunteers involved in the targeted activity (*contribution*) and group representatives from the internal technical committee (CTI), whose role is to guarantee the coherence of all the N&P standards (*management*). Once both parties have reached an agreement, the amendment is subject to a vote by the General Assembly (*management*). The General Assembly is composed of elected representatives from local groups, whose members are the sole decision-makers as to who will have the rights to manage the standard and contribute to their revision (*exclusion, alienation*).

The standard followed by EAN is regulated by the Brazilian Organic

Law 10.831 2003, which was last updated in 2017. The law outlines the basic requirements for organic production. It was completed by Decree 6.323 2007 and Normative Instructions between 2009 and 2011. The latter provide details on its application, including control mechanisms and procedures, and production standards for plants, animals, and aquaculture. Organic standard revisions are drafted and proposed by the National Commission for Organic Production (CNPOrg) (*contribution*). In order to integrate civil society in the planning and management of public policies, the CNPOrg includes a wide variety of stakeholders from both public and private sectors. Among them, EAN is invited to participate and give their opinion at monthly meetings of local Organic Production Commissions (the local CNPOrg units). Standard revisions may be adopted later by the government, which decides who may or may not participate in the CNPOrg (*exclusion and alienation*). The Ministry of Agriculture, Livestock and Supply (MAPA) is in charge of making standards operational in the form of a handbook of good practices for organic production (*management*). Public rules and standards provide basic production rules, but let each PGS define stricter rules. For instance, the law allows conventional production in certified farms, as long as the type of crops differ from those used in the organic production. EAN tolerates mixed production units, but stresses that it would be better if farms were entirely organic in the long term. Some nuclei encourage five-year conversion period for farms to become 100 % organic. Although the regulations may allow some hybrid seeds, some EAN nuclei restrict their use when producers grow at least 10 % of the same crop of a non-hybrid variety (*contribution*).

CNG chose to base its requirements on the National Organic Program's official standards for crop and livestock production – although government authorities do not recognize PGS certification. However, the community created their organic standards for aquaponics and mushroom production. The lack of public recognition limits the development of the PGS in terms of legitimacy, but the organization has complete autonomy to manage the label and related standards. CNG aims to promote organic farming in local and regional food systems. It does not certify large agribusiness operations or processed food manufacturers. Advisory councils composed of peer producers have an advisory role for drafting and amending CNG standard. Certified producers freely share their opinions with CNG staff, either by e-mail or via the website. Amendments are generally proposed by the CNG staff (*contribution*), with the assistance of advisory councils, if necessary. Before major amendments are considered, CNG producers are invited to take part in large-scale surveys and focus groups to discuss the proposals. When there is general support for a change, the board of directors makes the final decision on whether to accept or reject the amendment without appeal (*management, exclusion, alienation*). Although it is not official, CNG takes its members' opinions into consideration. Thus, members were widely consulted during the development of the aquaponics and mushroom standards in 2016.

In East Africa, the EAOPS standard's original goal was to encourage the development of a regional organic sector. This objective, which was supported by development projects and international NGOs, encouraged key actors in the public and private sector to work together: national standards bodies, National Organic Agriculture Movements (NOAM), national certifying bodies, and the East African Business Council. This was organized in the framework of the Regional Standard Technical Working Group, the body tasked with writing the standard's text (*contribution*). The EAOPS was based on the IFOAM core standards and the Codex Alimentarius guidelines, and adapted to the production conditions in East Africa. Ownership of EAOPS was then handed to the national bureaus of standards of the East African Community (EAC) (*management, exclusion, alienation*), and NOAM was made warrant of the certification process. However, the public-private sector collaboration ended there. The public authorities have given little support and paid little attention to EAOPS since then. The standard is revised every 10 years. The revision process is supposed to integrate comments from the stakeholder community, but there is no real mechanism to allow

producer members to contribute to the resource, by suggesting technical standard revisions. Only a few NGO representatives, including a single employee from TOAM participated in the 2019 revision (*contribution*). The new version is not accessible for free and most stakeholders are not even aware that the standard changed.

In Europe, the 2018/848 Organic standard can be modified based on the inputs from national committees of European countries (*contribution*). These committees are composed of public authorities, technical experts and producer representatives appointed by their respective governments (*exclusion*), and revision can or cannot be approved by the European parliament, which owns the standard (*management, alienation*). One notes that contribution rights are not accessible to actors who use the EU organic label outside European borders. As discussed in the next section, Table 5 shows that all organic labels under public ownership (EAN, KH and EU 2018/848) have very similar distributions of rights for this action situation.

6. Discussion

The PGS presented here provide significantly more diverse bundles of rights for label management than is the case for European TPC (Tables 4 and 5). The potential involvement of community members in PGS is framed by the rights they may hold with regard to the label. Yet, the rights for members vary greatly from one initiative to another. These differences may be partly explained by context specific adaptations, the goals of each initiative (Niederle et al., 2020), and the ownership of the label (Cuéllar-Padilla and Ganuza-Fernandez, 2018). While all PGS allow for peer participation during inspections (AS1, *contribution right*), differences emerge in terms of collective choice rights for certification (AS1, *management, exclusion and alienation*) and standard management (AS2, *contribution, management, exclusion and alienation*).

In action situation 1, which concerns bundles of rights to farmer certification, differences appear in the distribution of *management* and *exclusion* rights (Table 4). All the PGS studied rely to some extent on employees, who are responsible for administrative tasks and coordination. Some PGS also grant them decision-making powers for certification. In the case of CNG, the centralization of powers is explained by the vast territory of the label, which means that group activities and collective decision-making are hard to organize. Thus, the US PGS relies on a few employees who supervise the various operations involved in the certification process. In the case of KH, local groups organize inspections, but do not interact as a network. TOAM employees act as partially external overseers to ensure that each group has the capacity to control compliance with the standard. In NP and EAN, on the other hand, employees are limited to a supporting role and decisions are taken by members only. Both organizations rely on CSO structures with representative decision-making bodies, which act as a strategic hub for the whole organization.

One of the keystones for sustainable participatory initiatives underlined in the scientific literature is their capacity to remain compatible with individual expectations and values, and to provide a sense of community to members (Blanc and Kledal, 2012; Cuéllar-Padilla and Calle-Collado, 2011; Nelson et al., 2010). As such, polycentric governance – i.e. multiple centres with semi-autonomous decision-making which interact to make and enforce rules (Marshall, 2009)—combined with producer empowerment, help harmonize organizational goals (the label's credibility and reputation) and the participants' individual needs (improved living conditions). Moreover, according to the academic literature on the knowledge commons, individuals participate more readily and tend to achieve better results in the production of a common-pool resource when they also have the power to manage their resource and sanction free-riders (Ostrom, 2010). Indeed, in community-owned systems, members have access to better information about other members' past behaviour, the quality and quantity of their work, capacity, and needs (Bowles and Gintis, 2002). They can monitor each other's compliance easily because members interact face-to-face in various

daily activities. In the case of non-compliance, applying local sanctions within a community can be less expensive – and more coercive because of the community's moral weight – than a formal punishment (Ostrom, 1998). Ostrom (1998) added that community members also transmit these shared norms of behaviour at low cost and may teach skills such as “how to craft rules that change the incentives of participants while keeping monitoring and sanctioning costs low” (p. 119). In most cases, PGS are grassroots initiatives and their standards are inspired by customary practices, which provide the basis for social learning and capacity building. Peers who participate in label management can improve both their production skills and their problem-solving skills, thereby improving their ability to engage in critical reflection (Armitage et al., 2008).

Action situation 2 focuses on bundles of rights to participate in revision of standards. Here, the decentralized negotiation of standards may be seen as a way to adapt production rules to local conditions and to include more diverse practices than those usually identified in the global standards (Lemeilleur and Allaire, 2018). Nonetheless, not all PGS allow their members to adapt their standard (Table 5). Indeed, though some PGS own their standards and allow members to propose improvements (N&P, CNG), others have more hierarchical decision mechanisms (KH, EAN) because they rely on standards owned by the public authorities (East African Organic Product Standard and Brazilian law 10.831, respectively). These mixed property rights regimes limit producer involvement when drafting or reviewing the content of the standard, and are much closer to the EU regulation. In return, the label is recognized by their respective governments. National recognition may enhance the reputation and visibility of the label. For example, 7 years after the first PCAB registration, more than 8,900 producers were certified through PGS in 28 PCABs across Brazil (MAPA, 2022). In fact, it is argued in the literature that an enabling legal and institutional framework facilitates the co-management of common resources, by clarifying and legitimizing property rights (d'Armengol et al., 2018). Nonetheless, even when PGS are legally recognized by public authorities, state authority involvement is sometimes more constraining than helpful (Cuéllar-Padilla and Ganuza-Fernandez, 2018). PGS rules may undergo uniformization when they are embedded in a formal institutional framework, which limits the scheme's adaptability and autonomy. A balance between formalized recognition and local autonomy is needed (Lemeilleur et al., 2022; Nelson et al., 2015). According to Ostrom and Basurto (2011), for the successful governance of commons, it is essential that concerned actors have some say in proposing rule changes and making decisions about the rule changes. In this regard, EAN and KH have different mechanisms. In spite of the state accreditation, EAN has managed to limit the centralization of decision-making and the uniformization of its procedures to a minimum. Thus, local groups and regional nuclei still benefit from a wide range of rights on the label. In East Africa, on the other hand, co-management of resources in general is largely donor-driven and little genuine power is delegated to local actors. Despite that, peers are still far more involved in decision-making arenas, through various co-management structures, than would otherwise be the case (Cinner et al., 2012).

7. Conclusion

By characterising the property regimes of labels, we have illustrated how common property regimes of PGS – although some of them have existed for decades – may offer a new perspective for a more inclusive approach to the management of organic labels. PGS can incarnate forms of shared ownership within a community (N&P, CNG), but also hybrid forms of ownership where rights are distributed between the public authorities and a community (KH, EAN).

So far, few studies have focused on the role of PGS in label management (Kaufmann et al., 2020). One reason may be that PGS fall outside the regulation of ISO 17065 standards. As a result, they are not recognized by public authorities in Europe and the United States, which

are two major markets for organic products (FiBL and IFOAM, 2021). Another reason for not recognizing the role of PGS in organic label management is that PGS certification is mostly geared to local and domestic markets, even in low-income countries. This makes it less attractive in terms of income generation (de Lima et al., 2021; Home et al., 2017). In contrast, TPC organic production follows the same export/import dynamics as conventional food markets (Fouilleux and Loconto, 2017), which require homogeneous institutional procedures. Lastly, public recognition of PGS can be limited because some governments face lobbying from private certification bodies (Niederle et al., 2020). The latter may in some cases see PGS as a threat to their certification market and, therefore, use political and economic pressure to prevent public (legal or societal) recognition of their competitors (Cuéllar-Padilla and Ganuza-Fernandez, 2018). On the other hand, PGS are sometimes used as a stepping stone for ICS certification, as they allow smallholders to adapt gradually to export market requirements. Ultimately, the development of alternatives depends not only on their efficiency and their actors' competence, but also on how they fit into their respective institutional and legal environments (public recognition, cultural affinities, etc.) (Niederle et al., 2020).

PGS are complex and often polycentric systems. Their structures vary according to the context and they mobilize a variety of actors (public institutions, producers, NGOs, etc.), with distinct values and goals. The aim of this paper was to shed new light on the property rights regimes of PGS. Property rights frame participation, by formally defining the positions that members can hold. As illustrated by the cases studied here, there are important linkages between common property systems, sharing knowledge and information among actors, and the participatory management of organic food labels. The case studies analysed have structural differences in terms of their modes of governance and institutional environments. This impacts the forms of participation and the producers' appropriation of the label.

Property rights impact individual motivation when it comes to investing time and energy in the management of a resource (Schlager and Ostrom, 1992). Colding et al. (2013) demonstrated that property rights diversity is needed to match people's preference for participating in collective initiatives. A radically horizontal democratic frame may empower PGS members, but it may come with duties that not all peers are willing or able to fulfil. To address this issue, most PGS rely on representative governance structures to some extent. Their members can choose how they participate and which positions they are prepared to occupy. The diversity of forms of involvement in PGS and the wide range of associated property rights set the foundations for a form of participation that empowers PGS members.

PGS are also common property regimes that reconnect food system stakeholders with quality label management. During PGS-related activities, knowledge is shared between actors and trust-based relationships are built. PGS invite a broad range of people to actively care about food production, for example, NP and EAN involve non-producer members in collective decisions. This could help bridge the growing gap between food producers and consumers. In addition, informing consumers and allowing them to communicate with producers will help them to assume their political responsibility when making consumer choices (Brom, 2000; Duffy et al., 2005). Studies show that stakeholder involvement, shared social norms and the perceived availability of sustainable products can significantly encourage the development of sustainable food systems (Vermeir and Verbeke, 2006). The active participation of various stakeholders in the collective management of an organic label has potential for building inclusive food systems, where people can find food products that match their needs and values (de Lima et al., 2021; Ostrom, 2010).

CRedit authorship contribution statement

Philippe Ninnin: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing –

original draft, Writing – review & editing. **Sylvaine Lemeilleur:** Validation, Writing – review & editing, Conceptualization, Funding acquisition, Methodology, Project administration, Resources, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

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