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The future of organic certification: potential impacts of the inclusion of Participatory Guarantee Systems in the European organic regulation

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Abstract

Third-party certification (TPC) is the standard approach to quality assurance for organic production, but its administrative burden and cost make it difficult for smallholders to access it. Internal Control Systems (ICS) and Participatory Guarantee Systems (PGS) are possible alternative approaches because they are more accessible and less costly. Regulation (EU) 2018/848 on organic production allows ICS for small farmers. However, PGS are not included, despite being promoted by the International Federation of Organic Agriculture Movements (IFOAM) and officially recognised by several countries worldwide. This study aims to evaluate the possible future inclusion of PGS at the European level. Twenty-eight experts participated in a Delphi exercise, and both optimistic and pessimistic views were agreed upon amongst them. In the pessimistic view, bureaucratic excess and standardisation requirements needed in the process of PGS institutionalisation could emerge, resulting in even more rigid practices compared to the current ones. In the optimistic view, recognising PGS as a legitimate approach to guarantee the quality of organic products could foster the inclusion of smallholders by lowering certification costs, increasing cohesion and competencies amongst rural development actors and increasing the reputation of PGS-certified local products.

Keywords: Delphi method, European Union, Group certification, Organic certification, Organic regulation, Participatory Guarantee Systems (PGS)

Introduction

Organic agriculture is defined as a sustainable agricultural practice that places a high priority on using natural substances and procedures. Organic farming is essential in advancing sustainable agriculture because it preserves biodiversity, maintains ecological balance, improves soil fertility and protects water quality.

Organic production places a strong emphasis on quality assurance, and most organic legislations across the globe recognise third-party certification (TPC) as the official authenticity assurance mechanism. At the European level, the regulation of organic

farming and labelling started in 1991, with Regulation (EEC) No 2092/91 of 24 June 1991, which identified TPC as the official guarantee system for European organic production. However, because of the cost and time needed for the extensive paperwork required, this approach is less readily accessible to smallholders (Harris et al. 2001; Milestad and Darnhofer 2008; Sacchi 2015; Courville 2017). Furthermore, this certification system has been accused of being responsible for standardising the organic production process, leading to a 'conventionalisation' of organic production (Guthman 2004a, b; Iannucci and Sacchi 2021; Nelson et al. 2010). For this reason, alternative quality assurance methods for organic goods, namely Internal Control Systems (ICS, also known as group certification) and Participatory Guarantee Systems (PGS), have begun to be implemented by groups, associations and cooperatives of small producers in several nations.

The ICS model is a quality assurance system that enables an independent certification authority to assign periodic inspection of certain group members to a particular body or unit inside the certified operator. This suggests that independent certifying organisations must assess the system's operation and functioning and carry out a few spot-check re-inspections of individual smallholders (Meinshausen et al. 2019). This system simplifies smallholders' access to organic certification and thereby to organic markets and all their related benefits. This system is institutionalised and widely applied in quality assurance for integrated farming because it is one of the models applied to industry-sponsored business-to-business certification systems such as GlobalGAP Option 2 (Global G.A.P 2019; Mook and Overdeest 2021), where the group of farmers, as a legal entity, is the certificate holder. Estimating the current data of worldwide groups of organic farmers by referring to ICS is a complicated task because of the difficulty of gathering information even amongst worldwide certification bodies that do not always disclose data on group certification publicly. However, according to an estimate from the Research Institutes of Organic Agriculture FiBL, in 2019, there were 5900 certified organic producer groups with approximately 2.6 million producers certified under the ICS scheme in 58 countries, representing a total area under group certification of approximately 4.5 million hectares worldwide (Meinshausen et al. 2019).

PGS are quality assurance systems developed worldwide since the 1970s before any organic regulation or the Codex Alimentarius on organically produced food enacted in 1999 by the Food and Agriculture Organisation of the United Nations (FAO) and the World Health Organisation (WHO) as their first standardised guidelines for the production, processing, marketing and labelling of organically produced foods (FAO-WHO 2007). Originally, the founding principles of PGS were related to the need to ensure the quality of organic products for the final consumers. The essence of these models lies in the involvement of a wide range of stakeholders (e.g. smallholders, small processors, agricultural technicians, NGOs, supporting associations, academics and consumers) who share the responsibility for the proper functioning of the initiative and are also inspired and driven by a common vision of social justice, respect of natural resources, food democracy and sovereignty and workers' rights (Sacchi et al. 2012). The main difference between PGS and the TPC or ICS certification models lies in the absence of an external, independent body verifying the management of the system or the practices of organic producers. In general terms, the PGS models imply an assurance system

based on visits amongst peers who are directly involved in the community of producers, intermediaries and users, simplified bureaucratic procedures for the inspections and avoidance of trust-building intermediaries such as certification bodies and the related transaction costs. Basically, PGS is missing the characteristics of being supported by an independent actor that monitors and verifies compliance with the standards since monitoring and auditing in PGS are performed by the community members. In this respect, PGS are closer to a (less formal) second-party quality assurance scheme rather than a proper certification and trust is built based on direct relationships amongst the actors. Some groups of farmers referring to such a scheme, especially in the Global North, where they are not officially recognised, claim to apply PGS to differentiate themselves and their organic production from the more 'conventionalised' ones (this is, for instance, the case of the *Certified Naturally Grown* association in the USA). The development of PGS as an alternative and supplementary instrument to third-party certification within the organic sector is supported by the International Federation of Organic Agriculture Movements (IFOAM), an international umbrella organisation funded in 1972 for organic farming organisations; also advocates for the government's adoption of PGS as an opportunity for promoting organic agriculture and sustainable food systems. Currently, 242 PGS initiatives in more than 75 countries involving 1,244,239 producers have been recorded within the PGS database developed by IFOAM and sponsored by FAO (IFOAM global database, <https://pgs.ifoam.bio/>). Nevertheless, these numbers are likely underestimated because of the voluntary registration on the IFOAM repository. For instance, in 2015, 17 Italian groups of smallholders applying PGS were detected by a national research project, whereas the IFOAM database showed only two active initiatives (Sacchi 2019).

From a Western viewpoint, the European Union started a debate on the opportunity for small farmers to use alternative certification methods. This debate resulted in the official inclusion of ICS as a potential certification method for European countries within the Regulation on Organic Production (Reg. (EU) 2018/848), which came into force in January 2022. However, PGS have not been considered, even though they are applied in many European countries, promoted by the IFOAM, and officially recognised in many countries worldwide, especially in Latin America.

Therefore, this study aims to answer the following two research questions:

RQ1. What could be the potential future developments for the inclusion of PGS in the light of ICS introduction in the European regulatory framework?

RQ2. How might the incorporation of PGS into the European regulatory framework could impact the certification of organic products in terms of quality, accessibility, and sustainability?

Due to the unprecedented and foresight nature of this study, the possibility of PGS inclusion within the European framework was analysed using a Delphi method involving European experts and representatives of different categories.

The following section provides an overview of the academic literature dealing with the PGS phenomenon ("Overview of research on Participatory Guarantee Systems" section). "Novelties introduced by the European Regulation (EU) 2018/848 on organic production" section illustrates the novelties introduced by the most recent European organic regulation focussing on ICS, while "Materials and methods" section deals with the

design of the Delphi study. “Results” section reports the findings of the Delphi exercise, and “Discussion on the findings emerging from the Delphi application” section discusses the findings, considering previous research and answering to the research questions. “Conclusions” section concludes with the policy implications of the study.

Overview of research on Participatory Guarantee Systems

The debate on PGS has shown growing interest during the last decades.

International organisations such as the IFOAM and FAO have recognised the importance of supporting associations implementing PGS at a global level, while international associations such as *Slow Food* are developing their own PGS schemes for projects under their coordination. The reason behind the support of international organisations such as FAO or IFOAM to smallholders adopting PGS lies in the attempt to overcome the boundaries and obstacles they face in countries worldwide. Limited access to resources, financial constraints, market challenges, and regulatory barriers represent just some limitations that encompass a range of interconnected factors that create challenges for smallholders and affect their overall agricultural productivity and sustainability. Considering these challenges, alternative approaches like PGS have emerged as potential solutions to address the obstacles faced by small-scale farmers. PGS offers a more inclusive and participatory approach to organic certification, wherein farmers collectively ensure the quality of their products through peer review and consumer engagement. This system not only reduces certification costs but also fosters a sense of community and trust amongst farmers and consumers. As far as the academic literature on PGS is concerned, many scholars have investigated the topic from different perspectives. The subject areas of research pertain especially to social, agricultural, and environmental sciences, economics, business, and management. To provide an accurate picture of the current investigations on PGS, several bibliographic repositories (e.g. *Web of Science*, *Scopus*, *Science Direct*, *Semantic Scholar*, *Scielo* and *Organic Eprints*) were explored by two members of our research team and, after a first screening of the consistency of titles and abstracts, 84 documents dealing with PGS were identified. To keep the research as broad as possible, no exclusion criteria such as the language of the study, year of publication, location or methodology were imposed. The first study on PGS was published in 2007 and, since then, the interest in the topic has grown over the years. As expected, most of the research has been published in English except for five documents in Spanish, three in Italian and one in Portuguese. The studies analysed PGS experiences in more than 30 countries in South and North America, Europe, Asia and Africa. Half of the studies were based in South American countries ($n = 42$) followed by European ($n = 18$) and Asian countries ($n = 16$). The topics investigated are summarised below.

- PGS governance;
- Capacity building and farmers’ empowerment;
- PGS and agroecological transition;
- PGS challenges;
- PGS and third-party certification;
- Institutionalisation of PGS;
- Social capital and social movements;

- Consumer participation, preference and trust.

Furthermore, numerous studies evaluated include theoretical research and literature reviews. A couple of studies also deal with the justification of the existence of PGS in terms of system efficiency by applying mathematical approaches.

What appears clear is that, despite the growing interest in the topic in academia and amongst international and supranational organisations (i.e. IFOAM and FAO), no country of the Global North has discussed the possibility of PGS adoption. This is surprising, given the potential economic and social benefits that the literature on PGS has highlighted so far, and the recent inclusion of ICS but not PGS in the EU organic regulation can be seen as a lost opportunity.

Thus, the goal of this paper is to shed light on the views, opinions and perceptions of European experts on the possible inclusion of PGS in the future, and their evaluation in terms of effects deriving from the introduction of ICS into the European organic regulation.

Novelties introduced by the European Regulation (EU) 2018/848 on organic production

On 14 June 2018, Regulation (EU) 2018/848 (European Commission 2018) was published and entered into force on 1 January 2022.

As a general principle, Regulation 2018/848 defines organic production as a sustainable management system (Art. 5). Compared to the previous Regulation (EC) 834/2007 (European Commission 2007), the objectives and principles are extended and specified in more detail (Art. 4). A considerable emphasis is also given to animal welfare, for which the regulation has reserved substantial attention and precise requirements.

The novelties of the Regulation comprise many areas of application ranging from new products (e.g. sea salt and other salts for food and feed, wool not carded or combed, raw and untreated hides), to livestock production (e.g. the inclusion of cervine animals) and livestock practices (e.g. novel transhumance procedures). Nevertheless, the most substantial modification is represented by the introduction of the Internal Control System (or group certification) as a possible certification method for groups of small farmers ('group of operators' within the regulation). Many rules and procedures apply to the group of farmers that would refer to ICS for the assurance of their organic production. To make this certification possible, the term 'farmer' had to be redefined, which for the new regulation is was 'a natural or legal person, or a group of natural or legal persons, regardless of the legal status of that group and its members under national law, who exercises an agricultural activity' (European Commission 2018, Art. 3 (14)).

According to Art. 36, group certification requires that each group of operators complies with several characteristics linked to the size of the companies, the annual turnover of each operator and the company size, amongst others. These specifications are reported in detail in Table 1, together with a simplified version of the envisaged verification procedures to be carried out by the control bodies.

In their investigation of the potential effects of group certification in Italy, Solfanelli et al. (2021) found that while group certification may be a practical option, particularly for smallholders involved in highly specialised supply chains, it may also be constrained

Table 1 Characteristics of the group of operators and verification procedures to be applied by the control body

Characteristics of the group of operators (Art. 36)	Verification procedures (Art. 38)
<p>(a) Only be composed of members who are farmers or operators that produce algae or aquaculture animals and who in addition may be engaged in processing, preparation or placing on the market of food or feed;</p> <p>(b) only be composed of members:</p> <p>(i) of which the individual certification cost represents more than 2% of each member's turnover or standard output of organic production and whose annual turnover of organic production is not more than EUR 25,000 or whose standard output of organic production is not more than EUR 15,000 per year; or</p> <p>(ii) who have each holding of maximum: five hectares, 0.5 hectares, in the case of greenhouses, or 15 hectares, exclusively in the case of permanent grassland;</p> <p>(c) be established in a Member State or a third country;</p> <p>(d) have legal personality;</p> <p>(e) only be composed of members whose production activities take place in geographical proximity to each other;</p> <p>(f) set up a joint marketing system for the goods produced by the group; and</p> <p>(g) establish a system for internal controls comprising a documented set of control activities and procedures in accordance with which an identified person or body is responsible for verifying compliance with this Regulation by each member of the group</p>	<p>The control body carries out an annual inspection of each member of the group of operators (group ≤ 10 members);</p> <p>The control body carries out an annual inspection only on 5% of the total number of members of the group (group > 10 members);</p> <p>The sampling carried out by the control body shall be performed on at least 2% of the members composing each type of group;</p> <p>The conformity check carried out by the control body shall include the verification of the establishment and functioning of the ICS implemented by the group of operators;</p> <p>If previous controls have not detected any non-compliance that compromises the integrity of organic or in-conversion products (i.e. that these operators or group of operators have not received suspensions or withdrawals for at least three consecutive years and that these operators or group of operators have been assessed as having a low probability of non-compliance), the time interval between two physical on-site inspections carried out by the control body shall not exceed 24 months (within this time interval, the control body may still carry out documentary checks)</p>

for many other European small farmers who are not compliant with the strict requirements applied to the group of operators.

The brand-new regulation risks generating procedures that are more rigid than those claiming to allow access to organic certification to small operators. The European Union has acknowledged the crucial role and contribution of small organic farmers towards the maintenance of the rural landscape by issuing several acts and policy strategies (i.e. *Farm to Fork*, *EU Green Deal*, *EU Organic Action Plan* and *Common Agricultural Policy CAP 23–27*) as well as by recognising organic farming as a crucial farming system for the sustainability of European agriculture. Some observers claim that group certification represents a huge novelty in the European regulation. For instance, the European Organic Action Plan pays particular attention to the need of supporting small-scale and local organic producers to address their specific needs. In this sense, the Plan seeks to provide tailored support and simplify administrative processes to facilitate their participation in organic (group) certification. However, ignoring the potential of an inclusive, transparent and viable assurance system already applied by many groups of producers in European countries would imply a disregard of the efforts of smallholders committed to eco-friendly farming practices.

In the short term, it is very difficult to answer the question of whether the European Union will ever consider the future inclusion of PGS into its official regulation of organic agriculture. In the meantime, the opinions and perceptions of experts engaged in organic production at different levels might represent an important indicator for future directions in PGS development.

Materials and methods

The possible future inclusion of PGS into the European regulation on organic production was analysed by applying the Delphi method. The name of this approach alludes to the Greek Delphic Oracle, who was the most important decision support institution to deliver ‘the god Apollo’s knowledge to help policy makers [...] make their important decisions, so as to provide an institutionalised process to justify these decisions’ (Marchais-Roubelat and Roubelat 2011). The method is a form of an asynchronous, anonymous and mediated focus group, which was first applied during the Cold War (in the 1950s) by the United States Army in the framework of the RAND military project to foresee future enemy operations by reaching expert agreement through repeated rounds of anonymous feedback (Dalkey and Helmer 1963).

The Delphi method is a foresight technique currently employed in various research domains, including management, economics, social sciences, psychology, medicine, and education sciences.

There are three types of Delphi applications: *classical*, to forecast future trends; *policy*, to devise a strategy to address a specific problem; and *decision-making*, to help managers reach consensus and make better decisions.

This method is generally used to qualitatively assess future markets or trends, identify strategic opportunities, create participatory designs or forecast technological innovations.

The method has been widely applied in the agricultural and food fields (Bazzani and Canavari 2013; Chamorro et al. 2012; Su and Canavari 2018) because of its ability to integrate several expert opinions, mitigate biases, address data limitations and facilitate scenario analysis. Given the complexity of issues in the agri-food sector and the need for evidence-based decision-making, the Delphi method provides a structured platform to gather insights, make informed recommendations and prepare for future uncertainties. In the agri-food fields, anticipating and preparing for potential future developments, such as changes in consumer preferences, climate variability or policy shifts is of paramount importance. The inherent nature of this method, including its iterative process and ability to refine responses over multiple rounds, make it well-suited for forecasting and exploring different scenarios, thereby enhancing preparedness and possible future strategic decision-making. Recent applications of the Delphi method in the agricultural domain range from the analysis of the Italian market development for halal food (De Boni and Forleo 2019), to the analysis of the perception of European food safety governance (Camanzi et al. 2019) and the application of the blockchain to food traceability (Aldrighetti et al. 2021). In the present work, a classical Delphi approach allowed for the incorporation of future uncertainties and scenario analysis of the potential inclusion of PGS at the European level.

In more detail, this qualitative tool involves experts and social actors who participate in two/three discussion rounds to generate the group’s opinion on the specific issue under investigation. This method requires the individual participation of experts in an asynchronous discussion. The expert group members do not meet and do not know each other, and the researchers mediate all the communication between them. This procedure assures that group dynamics do not influence the outcomes.

In the present work, 90 European stakeholders of different categories such as policymakers, organic producers, organic consumers of food coops engaged in alternative agri-food networks, certification bodies and academics were invited to participate in the Delphi exercise. Twenty-eight of them from seven European countries and international organisations accepted to join the study. Two rounds were administered between January and June 2022. In Fig. 1, the diagrams illustrate how participants and their responses progressed during step 1 to step 6 of the research.

In the first step (first round), general questions (see Annex I) were submitted to the experts to provide an overview of the issues under investigation. Participants were asked to underline their beliefs on the consequences of ICS inclusion in the new European organic regulation with reference to the future development of PGS. The potential inclusion of PGS in a future European regulation on organic food as well as the consequences on the European organic sector, along with the challenges, opportunities, threats and implications of such a possible inclusion, were also examined. Afterwards, all answers were collected (Step 2), analysed and summarised by the researchers in the first report that was submitted to the experts to verify compliance with their views. Contextually, a set of new questions (see Annex I) was also resubmitted to the experts (Step 3/second round), aimed at reaching a consensus amongst them on the results of the first round and for delving into the specific issues linked to the possible future inclusion of PGS in the European regulation on organic production. In this phase, as usually reported in Delphi exercises, some respondents dropped out. Eighteen respondents took part in the third step and answered the new set of questions proposed by the researchers. Table 2 reports the professional categories and the nationalities of the experts who participated in both rounds of analysis. In Step 4, the answers of the participants were collected, whereas Step 5 was devoted to the analysis of the gathered data. Finally, in Step 6, the final report was drafted.

Data gathered from the two rounds of the Delphi exercise were subjected to thematic analysis to identify co-occurrent views (Beiderbeck et al. 2021). This analysis was carried

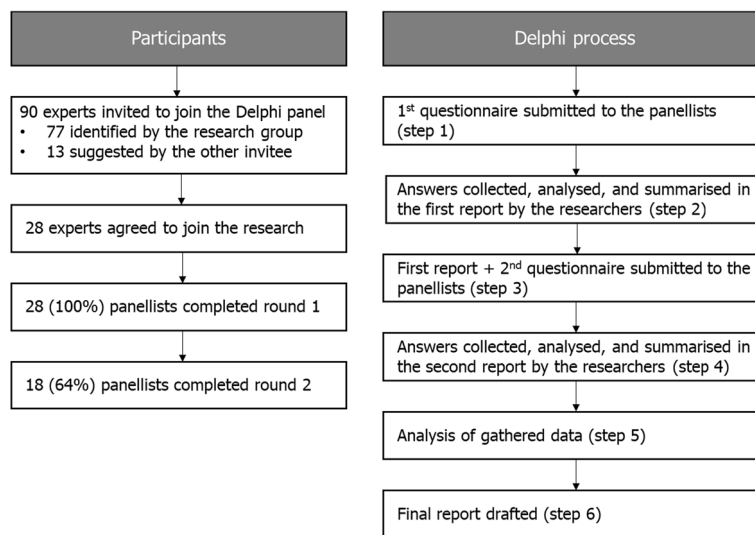


Fig. 1 Graphical representation of the flow of participants through the Delphi exercise

Table 2 Professional categories and nationalities of the experts who participated in the two rounds of the Delphi exercise

Nationality	Professional category	First round n	Second round n
Austria	Expert in the field	1	1
Croatia	Academic	1	1
EU level	Organic association	2	2
France	Expert in the field	3	2
Germany	Expert in the field	1	1
Greece	Expert in the field	1	1
Hungary	Producers' association	1	-
Italy	Academic	2	2
	Consultant	1	-
	Expert in the field	2	1
	Food cooperative	4	3
	Organic association	1	-
	Organic consortium	1	-
	Producers' association	3	1
	Control body	1	1
Spain	Expert in the field	1	1
International	International organisation	2	1
Tot.		28	18

out separately by the authors to identify common and/or divergent patterns across the answers associated with the administered questions (de Loë et al. 2016). Next, a categorisation of the responses obtained and a systematic coding were carried out to group common comments or divergent opinions. Finally, similar comments and variations in opinions were grouped according to the recurrent topics identified, as follows:

- impact of ICS inclusion in Reg. (EU) 2018/848 on PGS evolution at the European level;
- benefits and strengths versus problems and threats for the future inclusion of PGS;
- key actors for the evolution of PGS towards official recognition;
- PGS as a potential certification scheme for the European Union.

Results

In general terms, it is hard to state whether a consensus amongst experts has been reached. Results show that both optimistic and pessimistic views were agreed upon amongst the panel of experts and, consequently, the findings are described in the following sections based on this distribution of positive and negative views (see Annex II for a detailed overview of experts' sentiments on PGS inclusion in future EU organic regulation).

Impact of ICS inclusion in Reg. (EU) 2018/848 on the evolution of PGS at the European level

A common view on the impact of ICS on the evolution of PGS at the European level is related to the need to spread awareness of alternative certification schemes and to investigate the opinions that academic and other stakeholders have of PGS. Nevertheless,

some experts believe that the introduction of ICS is a first step in the direction that could help producers gain confidence with other certification schemes. According to some panellists, including ICS within the regulation can pave the way to the introduction of PGS, which could afterwards spread amongst communities. For some other respondents, ICS represents an interesting opportunity, but at the same time, it is considered to be substantially different from PGS and too vertical in its structure, making ICS unable to foster the application of PGS.

Other opinions hold the view that the introduction of ICS will not affect the future inclusion of PGS in any way. Farmers are not considered to be ready for accepting these schemes. Moreover, as stated by one expert in the field, *'PGS challenges several other EU trade and market regulations, which will not be easy to change. It is therefore not clear if the ICS path, which is basically an accommodation for the third-party certification system that relies upon (scientific) expert knowledge, will be the path that will open the doors for PGS'* (Respondent 9).

A common view is also shared amongst respondents that the first and most crucial factor is based on understanding how ICS will be set up and implemented, determining whether future advances towards PGS are applicable and, if so, how to proceed to ensure their possible inclusion in a future European regulation on organic production.

Benefits and strengths versus problems and threats for the future inclusion of PGS

For some experts, introducing PGS into the European organic regulation would mean that, to fully meet the requirements, these will eventually assume a similar form and implementation rules as those of group certification. Thus, the advantage would be the possibility of using the term 'organic' for products that currently comply with the organic regulation but cannot be labelled as such.

The main benefits identified would affect mainly consumers and producers.

From a consumer standpoint, PGS initiatives can represent an alternative to 'standard' certification systems that go beyond the organic production rules and consider aspects such as social justice, food democracy, workers' rights and dignity alike. This aspect could imply an increase in consumers who are critical to conventional production, leading to an increment of trust towards and within the organic sector. More awareness amongst consumers could be mirrored in more interest in organic products and the consequent further growth of the sector. From a different perspective, however, some experts claim that if PGS is implemented in the European Union with a different label or specification (as it happens in Brazil), it could be misunderstood or generate confusion amongst consumers. Furthermore, as has been reported in some PGS initiatives (Cavallet et al. 2018), consumers might not be willing to participate in the project because of a lack of time or interest. Finally, a few panellists believe that PGS will never be included in a future European organic regulation because of its second-party assurance nature and that these systems should rather be considered as experimental schemes for developing countries to be applied at a local level.

As for small farmers, experts believe that introducing PGS into the European regulation would simplify procedures, decrease bureaucracy and increase a 'healthy competition amongst certification schemes,' which would, in turn, improve the quality of services

provided to organic farmers. Small-scale farmers (or extra-EU farmers) could also benefit from PGS by penetrating foreign markets or creating new market niches.

Some problems linked to the possible introduction of PGS were pointed out, and they are related to limiting the operational capacity and the tailored nature of PGS to the different contexts because of the need to standardise and institutionalise procedures. The idea of developing harmonised and homogeneous PGS in each European member state has been strongly rejected by many respondents, who believe that PGS should be designed to be adaptable to each local context in which they would be developed.

Lack of experience in dealing with European regulatory frameworks would implicitly hamper the adoption of PGS, and more coordination efforts would also be required by actors involved in the process. Moreover, the complexity of the participatory guarantee procedures could exclude disadvantaged small producers operating in remote or less developed areas. Factors such as timing for verification procedures, involvement of experts or technicians and transparency of the whole procedure could hamper the implementation of an officially recognised participatory system. Finally, some stakeholders of the organic agribusiness as well as operators of certification bodies could represent a massive obstacle in the discussion of the introduction of PGS at the European level.

Key actors in the evolution of PGS towards official recognition

Apart from those panellists claiming that PGS will never be introduced into the European regulation, the rest identified key figures involved at the European, national and local levels who would be strategic if a discussion on the introduction of PGS was undertaken.

Figures identified at the European level are those acting in the European Commission, specifically the Directorate-General for Agriculture and Rural Development (DG Agri), Directorate-General for the Environment (DG Environment) and Directorate-General for Health and Food Safety (SANTE). Other institutions, such as the European Food Safety Authority (EFSA), IFOAM, Agroecology Europe, research centres such as CIRAD, organic organisations such as the French *Nature et Progrés*, as well as NGOs involved in PGS activities could also influence the introduction of PGS.

At the national level, the identified actors are policymakers and/or Ministries of Agriculture, Fisheries and Environment, as well as stakeholders involved in active and operating PGS practices. More than one expert suggested that the presence of a facilitator with sociological and technical expertise could assist in the adoption of officially recognised PGS.

At the local level, key actors can be associations of producers and consumers (some examples are the above-mentioned *Nature et Progrés*, the Italian *CampiAperti* and *Genuino Clandestino* movement, the *Via Campesina* international movement and *Slow Food*) who pursue a goal of producing and consuming in line with the principles and values of PGS. Finally, some respondents identified the role of the 'co-producer', which is an aware and critical consumer who proactively takes part in the procedures envisaged by the PGS assurance process.

PGS: A potential certification scheme for the European Union?

As for the recognition of PGS as an official scheme of certification for organic products, mixed opinions have been collected. General prudence has been recorded on the possible recognition of PGS by European countries. Someone pointed out that PGS could be used as a *‘means of control within ICS as it already occurs in Tanzania and Brazil’* and *‘to prove that there are no greater non-conformities within the PGS system’* (Respondent 16). Strong support for PGS could arise from the existing PGS initiatives in Europe (the already-mentioned French *Nature et Progrès* and the Italian *CampiAperti*) and the world (e.g. the Brazilian *Rede Ecovida de Agroecologia*). If positively evaluated, they could indeed play the role of forerunners, thus influencing future official recognition. Introducing PGS as a form of certification could fill the TPC gap in terms of ‘participation’ and could also help highlight the values that PGS certify aside from the organic guarantee (e.g. work ethic, workers’ rights, and food democracy). Other experts strongly believe that the introduction of PGS into the European Regulation is not amongst the priorities of the Community: the process would not be simple because the EU certification system does not include many of the criteria that characterise PGS. Someone underlined that the European Union *‘will never recognise PGS because they do not correspond to the definition of “certification” as it has been defined for more than 40 years’* (Respondent 3). Finally, a few other panellists claimed that control bodies could strongly disagree with these methods and that this might have a detrimental effect on the demand for organic PGS goods from non-local markets.

In a nutshell, Fig. 2 reports an outline of the topics that emerged during the Delphi exercise, summarised as the main drivers and obstacles for the official inclusion of PGS into the European regulation, in which we compared PGS to its main ‘competitors’ (i.e. TPC and ICS).

As seen, amongst the main factors that could positively affect the introduction of PGS within the European regulation, the panellists mentioned the prospect of a “reduced bureaucracy” which stands out as a primary catalyst. This implies a streamlined regulatory process minimising administrative hurdles and costs. Secondly, “trust amongst stakeholders” emerges as a pivotal factor shaping the success of PGS. Establishing mutual trust is essential amongst various stakeholders involved in the regulatory landscape. This

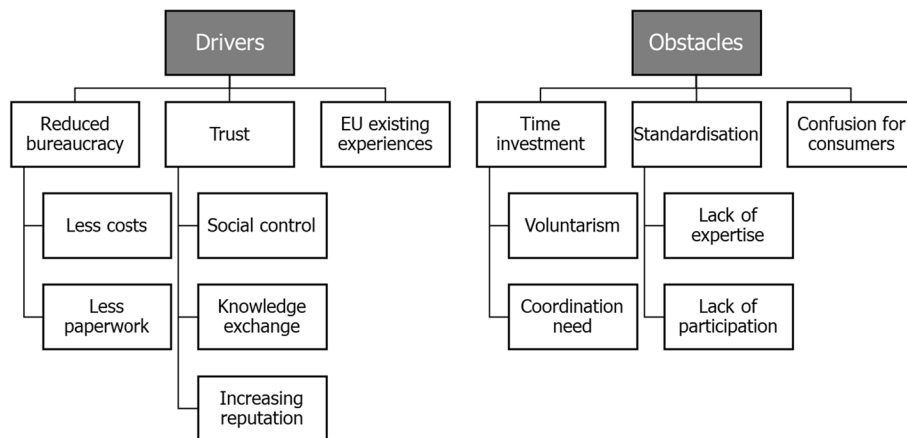


Fig. 2 Summary of the main drivers and obstacles for PGS adoption at the European level

not only includes regulatory bodies but also processors, consumers, and other relevant entities. Confidence in the reliability and effectiveness of PGS, driven by social control mechanisms, is a cornerstone for increasing PGS' reputation and contributing to its success. Finally, the "existence of other PGS projects" at the EU level contributes significantly to the positive outlook. The presence of ongoing or successful PGS initiatives serves as a precedent, instilling confidence and showcasing tangible benefits. Learning from the experiences of these projects could provide valuable insights and serve as a foundation for a more informed and robust integration of PGS within the broader regulatory framework.

In contrast to the driving factors, the present analysis identified key obstacles that pose challenges to integrating PGS within the EU regulations. The considerable "time investment" required to implement PGS emerges as a prominent obstacle. The intricate nature of PGS development and integration demands a substantial commitment of time and voluntary resources. Furthermore, the "standardisation of procedures" stands out as a critical hurdle. Achieving consistency in procedures related to PGS across diverse contexts can be complex. On the one hand, standardisation is pivotal for ensuring uniformity, reliability, and comparability of results. On the other hand, establishing harmonised procedures that align with different contexts could distort the intrinsic nature of PGS aiming to adapt to different agricultural and social conditions. The potential "confusion for consumers" represents another notable challenge. The introduction of PGS may lead to uncertainty or misunderstanding amongst consumers regarding its purpose, benefits, and implications. Addressing this challenge involves proactive communication strategies, public awareness campaigns, and educational initiatives to ensure that consumers are well-informed and confident in the value and safety of PGS.

Discussion on the findings emerging from the Delphi application

The results arising from the two rounds of the Delphi analysis showed heterogeneous opinions regarding the PGS issues explored. The findings of panellists' sentiments are discussed in the next sections by considering and answering to both research questions (RQ1 and RQ2).

What could be the potential future developments for the inclusion of PGS in the light of ICS introduction in the European regulatory framework?

As far as the ICS introduction is concerned, many factors support the negative opinions of experts. As already outlined by Solfanelli et al. (2021), some limits are imposed by the regulation itself. Farms with holdings bigger than 5 hectares represent 25.2% of total farms in the EU; of those, the ones devoted to horticulture could find it more difficult to access the group certification because they are more intensive and would therefore exceed the imposed yearly revenue limit of €25,000. Furthermore, the rules and schemes to comply with may not be so clear, difficulties in the initial set-up of the groups, a high bureaucratic load that farmers may face, as well as low interest in a 'participative' approach from the farmers' side could interfere with the success of ICS.

These concerns are mirrored in the pessimistic view linked to the introduction of PGS in a future European regulation. Possible bureaucratic excess and standardisation requirements needed in the process of PGS institutionalisation could hamper a genuine

implementation of these schemes as experienced in other countries (Hruschka et al. 2021). Lack of experience in dealing with the European regulatory framework, voluntarism and increased coordination efforts could result in even more rigid practices than the current 'conventional' guarantee systems.

On the other hand, from a more optimistic viewpoint, as demonstrated by Pinto et al. (2014), introducing the group certification could simplify and increase access to the organic market for small-scale farmers: currently, many of them are discouraged from entering these schemes because of factors related to high costs and highly bureaucratized procedures. In addition, ICS could reorganise smallholder cooperatives: overall procedures would be simplified, and there would be more transparency and increased trust towards organic farming, even amongst the more reluctant farmers. Some scholars have underlined capacity building and knowledge exchange as some of the most important factors in the PGS implementation and motivation for farmers' participation (Binder and Vogl 2018). Accordingly, the official recognition of PGS within organic regulation could increase cohesion and competencies amongst rural development actors and increase the reputation of PGS-certified local products. Furthermore, by founding their operations on lasting social processes and a connection to their communities, PGS participation would empower farmers and their capacity building through knowledge exchange (Home et al. 2017). In addition, PGS initiatives involve consumers (or co-producers) because capacity building also affects them when making 'informed purchasing decisions, whether buying directly from farmers, or in the retail chain' (FAO 2018). In addition, more awareness amongst consumers could lead to a more responsible consumption attitude, which has already been observed in many global social shopping initiatives and food coops self-managed by ethical consumers (Sacchi 2018; Sacchi et al. 2022).

Overall, some experts claim that establishing rules and procedures for implementing ICS certification could affect the future recognition of PGS and the consequent access to support payments for smallholders that adopt eco-friendly sound farming techniques.

How might the incorporation of PGS into the European regulatory framework could impact the certification of organic products in terms of quality, accessibility, and sustainability?

The many advantages of PGS, such as participation, social engagement and adherence to the values and principles of organic agriculture, have been generally recognised by the pool of experts involved. Panellists and the literature agree that PGS offers a more accessible and cost-effective way to obtain organic certification, reducing the financial burden associated with third-party certification (Lemeilleur and Sermage 2020; Loconto and Hatanaka 2018; Sacchi 2019). This can be a crucial incentive for small-scale and subsistence farmers. Nevertheless, if farm size can be a factor, PGS is not solely determined by it. It is indeed true that PGS is designed to be flexible and adaptable to various farm sizes, including in particular smallholders. However, the implications of PGS applications can vary. PGS places a strong emphasis on community and social dynamics. The participatory approach encourages collaboration amongst farmers and local stakeholders, fostering a sense of community and shared responsibility. Another underlined aspect is related to the enhancement of traditional and local knowledge of farming practices promoted in the framework of PGS. Farmers are encouraged to use sustainable and

organic farming methods that are well-suited to their specific regions. This approach not only preserves local agricultural traditions but also enhances the overall sustainability of farming practices. Furthermore, PGS can improve market access for small farmers by certifying their products as organic. This allows them to tap into the growing demand for organic products, thereby expanding their market opportunities. Finally, not only farmers can benefit from PGS application; consumers, who are often more willing to trust local products, can also actively participate in the certification process and become more aware of the source of their food.

However, substantial obstacles still seem to keep PGS far from the European Union priorities, firstly since PGS does not comply with the definition of 'certification' because of the absence of a competent and independent actor in the process and that powerful stakeholders in the organic food industry (e.g. certification bodies and large retailers) would probably not be in favour of a generalised PGS approval as a legitimate alternative to quality assurance for organic products. Secondly, while PGS emphasises community involvement and local knowledge, there may be concerns about the uniformity and consistency of certification standards. PGS operates in a decentralised manner with local groups setting their own criteria and practices. This decentralised approach might lead to variations in certification standards, making it challenging to maintain a consistent level of quality across all certified products. Consumers might worry about the reliability and trustworthiness of organic labels if the standards vary significantly from one PGS group to another. Finally, the decentralised and varied standards within PGS may complicate efforts to ensure ecological sustainability. The absence of a centralised authority for oversight and standardisation might result in laxer environmental standards or, conversely, as already outlined by other research (Anselmi and Vignola 2022; Bara et al. 2018; Cuéllar-Padilla and Ganuza-Fernandez 2018), overly rigid requirements that do not consider specific local conditions.

Conclusions

Starting from the recent inclusion of ICS as an alternative certification method in the EU regulation for organic agriculture, we explored future scenarios for the possible inclusion of PGS as a further, more viable quality assurance option for smallholders willing to access the organic agriculture business.

Carrying out a Delphi exercise allowed us to identify some key elements; however, we did not reach a unanimous consensus about whether PGS will be ever included in the EU regulation.

The findings of the present study suggest that PGS will continue to play a role in local communities, where they can be applied to small businesses solely oriented to the local market where they can build their own reputation without relying upon a formal organic certification. By contrast, the possibility that PGS could be used as an alternative 'certification' scheme for organic agriculture goods destined for non-local markets does not seem likely at the European level.

The main limitations of this study are inherent in the qualitative approach and in the use of a narrow group of experts to perform the foresight exercise. Another limitation lies in the self-selection of the experts who—despite our efforts to have a balanced set of invited participants—led to a final panel in which some types of participants prevailed.

Despite these limitations, some policy implications can be derived from this study. Given that the organic regulation currently requires a form of certification, it is probably pointless to propose PGS as an alternative solution to access the formal organic market in the European Union. PGS seems more suitable in developing countries, where modern supply chains are less dominant and where challenges related to trust in food safety mechanisms and institutions can be more prevalent (Kokthi et al. 2021) and could be mitigated by trust based on direct relationships. However, current experiences show that it is possible to use PGS to build trust in specific market situations, which may generate opportunities for the creation of a new market niche that could be recognised at the European Union level as a distinct solution to sustainability-oriented and locally supported agriculture. Rather than the products and the producers, PGS could be the right approach to assure the quality of the social engagement in the community and the commitment to make production and consumption more socially, economically and environmentally sustainable. Understanding the boundaries of farming and the obstacles faced by small-scale farmers is crucial for devising effective strategies to support sustainable and inclusive agriculture. Embracing innovative approaches like PGS can pave the way for enhanced food security, increased market access and rural development. By acknowledging and addressing these challenges, policymakers and stakeholders can work towards creating an enabling environment that would help smallholders flourish and contribute to a more resilient and equitable agricultural sector. Future research perspectives could include an in-depth examination of PGS documentation to explore the operational strategies, protocols, and detailed procedures within various PGS systems. Such an investigation could provide valuable insights into the practical implementation of PGS and shed light on the commonalities and variations in PGS frameworks, governance structures, and certification procedures across different regions and initiatives worldwide. By examining the documentation, reports, and protocols employed by PGS initiatives, it would be possible to gain a deeper understanding of the challenges and opportunities inherent in these systems and provide a possible identification of a common ground for this type of initiative as well as the evaluation of the perception and attitudes of the local communities towards them.

Appendix 1: Questions administered during the two rounds of the Delphi

Questions asked to the panel of experts during the first round of the Delphi

1. In your opinion, what will be the impact of the introduction of Internal Control System (ICS) as a group certification in the implementation of Reg (EU) 848/2018 that will come into force on 1st January 2022?
 2. In your opinion, will the EU recognise in the future Participatory Guarantee Systems (PGS) as a form of certification for organic products?
 3. In your opinion, how could the introduction of PGS impact the EU organic sector (both from farmers and consumers point of view)?
 4. What are the key actors for PGS introduction?
 5. What kind of obstacles will Participatory Guarantee Systems have to overcome for its introduction?
 6. What could the benefits of Participatory Guarantee Systems be if they will be included within the EU Regulation on organic production?
 7. And what could the problems of Participatory Guarantee Systems be if they will be included within the EU Regulation on organic production?
-

Questions asked to the panel of experts during the second round of the Delphi after submitting them the summary of the first round

1. Do you have some comments about the report? Do you strongly agree or disagree with specific statements?
 - 1.1 Would you like to highlight some important sentences?
 - 1.2 Would you like to add further comments?
 2. Considering the opinions expressed and based on your experience, do you think that the barriers and difficulties exposed in the report will be overcome?
 - 2.1 How?
 3. Considering the opinions expressed and based on your experience, do you think that strengths and advantages can be used to generate improvements?
 - 3.1 How?
 4. Amongst consumers, producers, and other key actors (at European/national/local level) identified, which ones will actually have an impact (positive or negative) on a possible inclusion of PGS within the EU regulation?
 - 4.1 How?
-

Appendix 2: Detailed overview of positive and negative experts’ sentiments on PGS inclusion in future EU organic regulation in the 2 rounds of the Delphi exercise

		Round 1	Round 2
<i>Sentiments on PGS inclusion in future EU organic regulation</i>			
Austria	Expert in the field	–	–
Croatia	Academic	+	+
EU level	Organic association	+/-	–
EU level	Organic association	+	+
France	Expert in the field	+	+
France	Expert in the field	+	+
France	Expert in the field	–	NA
Germany	Expert in the field	–	–
Greece	Expert in the field	+	+
Hungary	Producers’ association	–	NA
Italy	Academic	+	+
Italy	Academic	–	–
Italy	Consultant	+	NA
Italy	Expert in the field	–	+
Italy	Expert in the field	+	NA
Italy	Food cooperative	+	+
Italy	Food cooperative	+	+
Italy	Food cooperative	–	–
Italy	Food cooperative	+	NA
Italy	Organic association	+	NA
Italy	Organic consortium	–	NA
Italy	Producers’ association	+	+
Italy	Producers’ association	+	NA
Italy	Producers’ association	–	NA
Italy	Control body	+/-	–
Spain	Expert in the field	+	+
International	International organisation	+	+
International	International organisation	+/-	NA

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Author contributions

GS and MC contributed to conceptualization; all authors contributed to methodology. GS wrote "Introduction, Overview of research on Participatory Guarantee Systems, Novelities introduced by the European Regulation (EU) 2018/848 on organic production, Materials and methods and Discussion on the findings emerging from the Delphi application" sections; GS, LR, and MC wrote "Results" section; MC wrote "Conclusions" section. GS and MC contributed to writing—review and editing. GS and MC supervised the study. All authors read and approved the final manuscript.

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