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Innovations for Sustainable Food Systems: Focusing on Agroecology and Participatory Guarantee Systems

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While organic agriculture has created a set of institutions that allow producers to know which practices provide "organic" quality and allow consumers to recognize it via an on-package label, the landscape of agroecological products is quite fluid and diverse. Often, products are traded directly between producers and consumers and quality is conveyed verbally. However, there has been a general increase in the use of private labels to claim that products are agroecological or "more than organic". This article explores these recent innovations by asking: *How does agroecology become a product quality claim in innovative forms of quality control?* To answer this question, data on labels claiming to be "agroecological" and related assurance systems were gathered through internet research, market monitoring and semi-structured interviews in the European Union. In this article we explore the range of claims, and control networks, used to characterize the so-called "agroecological" labels and confront them with FAO's 10 principles of agroecology. This 27-country comparison offers interesting insights into the overlaps and boundaries between agroecology and organic agriculture in terms of the markets that are created.

Key words: agroecology, organic, standards, participatory guarantee systems, Europe

1. Introduction

The term "agroecology" has had different uses and trajectories in the scientific literature, policy dialogue and social movements (Bellon and Ollivier, 2018; Ollivier and Bellon, 2013), where each offers its own vision of the concept. These range from a science, to a set of agronomic practices informed by ecology, to socioeconomic values, to political platforms (Wezel et al., 2009). Over the past decade, the term agroecology has gained ground in research and higher education (Nicot et al., 2018), agricultural practices, international expert discussions, and specific national policies, legitimizing it as a means to achieve sustainable agriculture (Loconto and Fouilleux, 2019). An element of agroecology that has received less attention is the market for agroecological products and the market infrastructures required to ensure that an "agroecological" quality is recognized and valued in commercial exchanges (Loconto et al., 2018). While organic agriculture has created a set of institutions that allow producers to know which practices provide "organic" quality and allow consumers to recognize it via an on-package label (Fouilleux and Loconto, 2017), the landscape of agroecological products is quite fluid and diverse. Often, products are traded directly between producers and consumers and quality is conveyed verbally. However, there has been a general increase in the use of private labels to claim that products are agroecological or "more than organic" (Poméon et al., 2018. This article explores these recent innovations by asking: *How does agroecology become a product quality claim in innovative forms of quality control?*

To answer this question, data on labels claiming to

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be “agroecological” and related assurance systems were gathered through internet research, market monitoring and semi-structured interviews in the European Union. In this article we explore the range of claims, and control networks, used to characterize the so-called “agroecological” labels and confront them with FAO’s 10 principles of agroecology. This 27-country comparison offers interesting insights into the overlaps and boundaries between agroecology and organic agriculture in terms of the markets that are created.

2. The problem of multiple labels

Since the 1980s there has been a steady rise in the number of labels used around the world to place on packages to communicate specific qualities – currently more than 456 ecolabels exist globally[1]. Not only is there an increase in number, there is an accumulation of these labels on product packages.

Let’s take three examples from products in Latin America. First An Ecuadorian chocolate bar that is exported from Latin America bears the labels: EU Organic, USDA Organic, K (kosher). This same chocolate bar, when sold in its country of origin (Ecuador), only has to comply with the national technical regulation for organic production, which does not require and on-package label. However, these labels are left on the packaging despite not being required by the national authority to help the consumer identify them as organic. In Ecuador, the producer is also required to apply a traffic light-type nutritional labeling for sugar, fat and salt levels and indicate if it contains a “transgenic component”.

Second, a biodynamically certified coffee from Peru is exported with the USDA organic label, the certifier’s label (CCOF), the roaster’s label (Café Virtuoso), and a voluntary indication that it complies with Peru’s Organic Production Law (since there is no on-package label required there either). In the local market, producers only need third-party certification and do not use labels on packages.

Third, a wheat coffee produced by a family farm in Chile with the label “Manos Campesinas” – farmers hands – is enough to indicate that it is (i) of rural origin; (ii) artisanal; (iii) healthy (sanitary requirements and sustainable practices); and (iv) promoter of local development. But there is also a 100% natural stamp for good measure.

So, what are all of these labels about? Labels are actually hiding a system that is used to define good practices and to ensure that both producers and consumers recognize and reward these practices. The system begins with a standard, which is a written document that contains criteria and indicators. It defines what needs to be done and often how to do it.

There is usually some type of certification or control on producers and/or traders that consists of audits and tests. This is how we can know if things are being done properly. These checks can be done by self-assessment, by a party to the market exchange, usually a buyer, or by an independent third party. A portion of these tests involve analytical laboratories that calibrate standards.

Accreditation is an important aspect of these systems as it is an oversight mechanism to make sure that the certification system is working properly. In other words, effective accreditation of certifiers and analytical laboratories means that we can trust the results that certification provides.

Finally, there is often a label. This label is a logo or a brand that communicates the key message of the standard to consumers.

Voluntary standards usually have combinations of these different components and the most credible standards have all of them. All we see as a consumer is this outer layer. So, we must count on these invisible internal processes to be working properly. But do we even know what properly means? Who is deciding this for us?

(1) The Tripartite Standards Regime

This layered system of governance is what we call the Tripartite Standards Regime (TSR) (Loconto and Busch, 2010). There are different ways to arrange the checks and balances used within the TSR and the

credibility of different systems emerges because of the separation of the tasks of attestation – that is who declares the good practices – from determination – who decides/judges that the practices are indeed good.

Previously, we have differentiated 5 models of assurance that are widely used to certify sustainable agriculture around the world (Loconto, 2017).

The first is Model 0 where the same organization or person both declares and controls that they are sustainable. Usually these are companies or farmers who are doing this and is not usually considered credible.

The second is Model A, which is 3rd party accredited certification (TPC). This is considered by industry actors as the most credible because you have a third party – a certifier who declares and determines if the practices are good. This 3rd party itself is audited by an external accreditation body.

The third model is Model B, which is 3rd party certification, but it is not accredited. This means that there is a combination of second party attestation – usually a control by the standards development organization – and 3rd party determination of conformity.

The fourth model is Model C, which combines a first part attestation with either a 2nd party or a 3rd party determination. Model C is sometimes referred to as a form of social control as the 2nd party determination is carried out by members of a common initiative. If there is a 3rd party control, it is usually carried out only on a random sample of producers.

Finally, the last model is Model D. This is 2nd party verification – or participatory guarantee systems (PGS). These systems are based on a recognition of the importance of farmer knowledge in sustainable agriculture and the use of peer review as a means to carry out the audits. There is documentation and a separation of the declarations by farmers about their practices and the judgment about those practices by a municipal or national level PGS committee made up of representatives of the farmer groups. This approach is becoming extremely popular among agroecological farmers.

3. Agroecology, another model of certification?

Within this landscape of increasing labels for sustainable agriculture, there is a new term that has recently entered the scene – which is agroecology. In this article we try to respond to the question – *is agroecology another model of certification? What are the discourses and markets for agroecology?*

(1) What is agroecology?

To begin with, Agroecology emerged into international discourse and is known by Wezel et al (2009) as a science, a set of practices and a social movement.

As a science it is an attempt to incorporate concepts and methods of ecology into agronomic sciences and practices. The most common definition of agroecology is presented by Altieri (1987) who defines it as the application of ecological concepts to the study, design and management of a sustainable agriculture.

As practice, these scientific principles must follow context-specific applications of techniques that meet local conditions and farmers' needs. This applies to the availability of resources, technologies and operational activities and means that agroecology should enable the design and implementation of methods and strategies suitable to local bio-physical conditions and socio-cultural contexts. These principles are increasingly being taught in university training programs linked to ecology and organic agriculture (Nicot et al., 2018).

The fact that agroecology takes into account the application of principles that depend on local needs and realities, means that both local knowledge and the ingenuity of farmers must be taken into account in practice (Rosset and Martínez-Torres, 2012).

As a social movement, is it closely tied to La Via Campesina and the food sovereignty movement. Here, the concept of agroecology tries to integrate an understanding of the economic and social dimensions that facilitate interactions between activities and actors involved in an agro-food system. In other words, social movements based on agroecology are the key to delivering and demonstrating agro-ecological practices

(Rosset and Martínez-Torres, 2012; Sevilla Guzmán, 2006).

However, behind this concept of agroecology, there is no established standard or TSR that justifies or standardizes how the term is being used ... particularly in terms of market exchanges.

(2) A harmonized definition of agroecology

In an attempt at harmonization, between 2014 and 2018 the Food and Agriculture Organization brought agroecology into its science-policy interface by holding a Global Dialogue series both internationally and in the main world regions (Loconto and Fouilleux, 2019). What this dialogue did was only open up the concept, and enabled the inclusion of the notions of peasant farmers, family farmers, artisanal and traditional production.

As a follow up to this global dialogue FAO began working on a set of 10 elements that could be used to define agroecology (Barrios et al., 2020). Of particular interest to the question of labels and markets, is that the FAO brought, for the first time, the notion of circular and solidarity economy to the definition. The definition of this element claims that strengthening short food value chains can increase the incomes of food producers while maintaining a fair price for consumers. There is also the intention that markets for agroecology can help to value biodiversity and ecosystem services.

At the same time, while these 10 elements were being established, the first author conducted the very first study on agroecological markets – that did indeed focus on those short food value chains (Loconto et al., 2018).

What we found was that in all of the markets that we studied, the agroecological farmers were feeding themselves and their families. On average about 45 percent of the produce farmed agroecologically is being exchanged through market channels that could be called agroecological. But that means that 55% was sold as conventional – and thus not recognized as agroecological.

When we looked at what was being valued in these markets – in terms of how the actors described what agroecological products were to them – we found that 'no-agrochemicals' was the strongest value; but there were also many health claims as well as natural, organic, local, and fresh. The social values were very few in these initiatives in Africa and Latin America.

This preliminary work inspired us to take on a much bigger project to try to understand how agroecology becomes a product quality claim in a landscape where we are seeing the emergence of innovative forms of quality control with alternative labels and digital apps.

4. How does agroecology become a product quality claim in innovative forms of quality control?

(1) A multi-method approach

We began this research in the middle of the second wave of lock-downs in Europe due to Covid in the winter of 2020–2021. We therefore adopted a web-based approach to try to identify 695 initiatives in the EU-27 countries that are using Facebook and other forms of social media to shorten their value chains. We conducted structured interviews via voice or email in order to get detailed information about labels, forms of certification and values from 71 initiatives. We also did 10 in-depth case studies through semi-structured interviews. We conducted quantitative analysis of the qualitative data by employing socio-semantic network analysis of the descriptions that we collected from our questionnaire responses and the descriptions of agroecology reported by the initiatives.

We were able to collect information about initiatives across Europe with at least 2 initiatives in each country of the EU-27. The type of information that we were able to collect about each of the initiatives included the type of market, the number of producers, intermediaries and consumers, the forms of intermediation, the number and types of labels, forms of quality control and the values of agroecology.

(2) Who makes claims about agroecological value?

Our data show that we have a lot of producers and

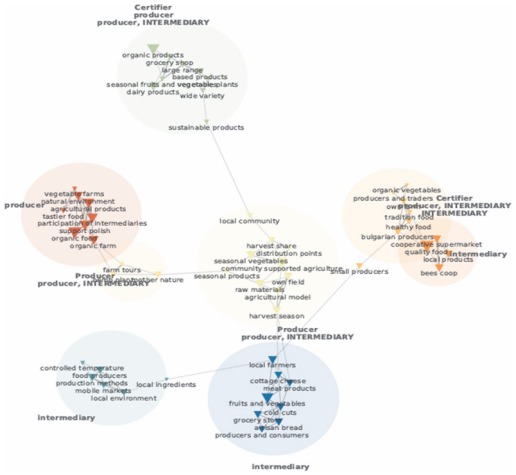

Fig. 1 Claims clustered by actor type
Source: authors' analysis using the CorTexT platform

intermediaries who are making claims about agroecological value (Fig. 1). However, it is only the certifiers who are making claims about organic products.

An Italian example is Zolle, a box delivery scheme, which relies upon an informal type of quality control and certification that is run by the aggregator who selects farms and delivers their products via bicycle to homes in Rome every week (391 tons per year of fruits and vegetables). In this example, social control is the form of certification that is used. The leader of Zolle claims how it works:

I know agronomists who know farmers, who know aggregators. I know technicians who know other farm enterprises, so that I can conduct a series of cross-references of the farms with which we work in order to discover if there is a problem in the on-farm practices.

What we also see is the emergence of new hybrid actors who are producers and intermediaries at the same time. This is a trend that we have been seeing over the past 10 years within these short chains as producers are often diversifying what they do so that they are also processing and selling their products directly to consumers – thus taking on these intermediary roles of aggregation and value addition.

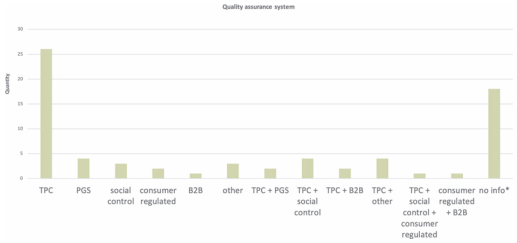

Fig. 2 Types of assurance used
Source: authors' analysis

(3) What model of assurance?

When we look at the models of assurance that are being used by the initiatives (Fig. 2) – we have a clear majority of the use of third-party certification (and also no information, because it was not reported).

It is important to highlight the fact that not only are the participatory guarantee systems very few – and mostly found only in the Mediterranean – but also that we see that there is quite a lot of mixing of models among the initiatives that we studied. This points again to the diversification of market channels for agroecological products.

In order to explore this point further, we compared the values and visions of agroecology that are communicated by the different labels that we count in our sample.

We find indeed that when the Model A version of certification is used – agroecology is sold as organic (Fig. 3).

However, when Models C, D and 0 are used – we see an emergence of the qualities of local products, responsibility, producers and quality guarantees (Fig. 4)

In line with the FAO Global Dialogue definitions – we see producers emerging rather than product as is seen with the formal label – this suggests the importance of the direct personalised relation ships in the market exchanges.

We did a further mapping of how the top terms that are found in the descriptions of agroecology are used according to the different models of assurance (Fig. 5).

We see that third party certification dominates the

Fig. 3 Formal label descriptions
Source: authors' analysis using NVivo

Fig. 4 Informal label descriptions
Source: authors' analysis using NVivo

use of the word organic food, but also fair trade, probably because of the regulatory restrictions around the uses of these words.

We see producer organizations, management systems and quality of life associated with second party certification – particularly of production systems and

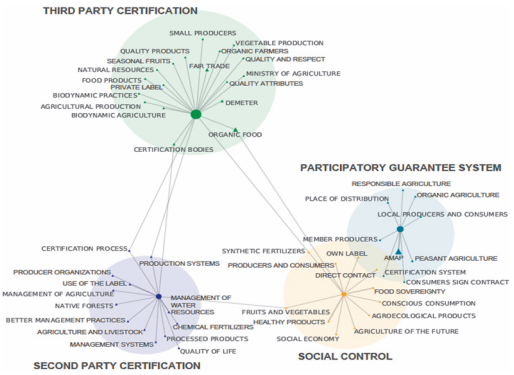

Fig. 5 Claims clustered by Model of Assurance
Source: authors' analysis using the CorTexT platform

fruits and vegetables.

Participatory guarantee systems and social control are closely linked – as is demonstrated by the overlapping cluster – because they are often organized around local producers and consumers, direct contact, and community supported agriculture – which is represented by the French acronym AMAP. These clusters represent models C, D and 0 and they are making claims to peasant agriculture and the agriculture of the future.

Finally, we did a heatmap analysis to compare the top ten descriptive terms used by our interviewees and the 10 elements of agroecology. In a heatmap, a chi2 statistical test is used to test how often these words appear in the same sentence within the database. The more often they co-occur the redder the box, the least often the bluer the box (Fig. 6).

What we can note in reading this map are two key elements. First, the most closely linked concepts are i. diversity and organic farms and ii. human and social values and seasonal vegetables. We found these terms often related to the model A forms of certification in our preceding maps. Second, circular and solidarity economy from FAO's 10 elements is most closely related to the idea of local (products and farmers) in the words of our interviewees. These terms are most often used by Models C and D. However, strangely, there are no matches for culture and food traditions in the top 10 values of agroecology in our database. This

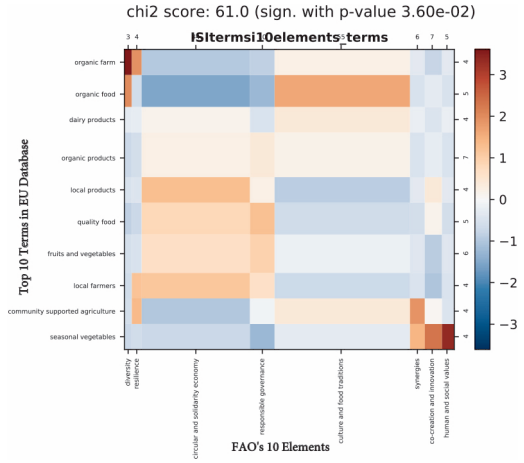

Fig. 6 Relationships between FAO's 10 elements and the value claims by initiatives
Source: authors' analysis using the CorTexT platform

suggests that circular and solidarity economies are not yet embedded within the socio-cultural fabric of territories. Given that Model A (organic third-party certification) is still the dominant model in the EU, this suggests that the values are still tied closely to the products themselves rather than forms of exchanges.

5. Conclusions

To summarise the principal findings of our study, we notice that sustainability is referring to ecological and bio+ qualities – those that go beyond what is regulated by the organic label. In terms of guarantees, the EU organic label remains dominant, but private labels using social control or PGS are indeed on the rise.

We note significant digital tendencies – perhaps it is a bias based on how we collected our data – but nonetheless all of the initiatives in our database are using digital platforms for communications, sales or new forms of consumer evaluation and feedback.

Finally, there is a lack of mechanisms to fight fraud in claims-making that go beyond interpersonal trust; it is a weakness of these new systems. Nonetheless, the strength of these emerging agroecological markets lies in the diversity of initiatives that enables flexibility and innovation.

In conclusion, the boundary between agroecology and organic disappears in market exchanges – we are still living in a situation where the Organic TSR remains dominant.

However, the labels are communicating a diversity of ideas about agroecology with messages that are more complex than only "no agrochemicals". As with the changing nature of the activities of producers in these networks, the values that are communicated are closely tied to their changing activities.

We can also confirm that there are linkages between the 10 elements of agroecology and the label-based claims. We found that diversity and human and social values are the most relevant for the EU initiatives.

The links to social and solidarity economy and responsible governance are made through alternative forms of assurance. In particular, there is a movement away from third party certification (Model A) and even participatory guarantee systems (Model D) in favor of social control (Model C) and digital platforms where consumers can comment and have a greater voice in shaping the agroecological values (Model C).

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Notes

[1] https://www.ecolabelindex.com/, Accessed 30.11.2022.

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