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► **To cite this version:**

Luc Bodiguel. How agroecological science has been incorporated into agricultural law and policy. Journal international de bioéthique et d'éthique des sciences , 2023, IV. hal-04382378

HAL Id: hal-04382378

<https://hal.science/hal-04382378>

Submitted on 16 Aug 2024

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How agroecological science has been incorporated into agricultural law and policy

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Journal international de bioéthique et d'éthique des sciences, n°2023/4 2023/4 (vol.34), 41-54.

Key words: *Agroecology, Rural law, Common Agricultural Policy*

Summary: *Agroecology has become a trendy word in political and media discourse and the subject of international debates, but its meaning remains unclear. This article defines this experimental science and explains its substance, and then goes on to examine how and to what extent agricultural law has allowed it to enter the political arena.*

Cette version n'est pas la version définitive : PRE PRINT

Introduction

Confronted by the negative reputation of the predominant model of agricultural and food production, which is based on long, specialised supply lines, dependent on fossil fuels and a major source of greenhouse-gas emissions (carbon dioxide, methane, etc.)¹, several alternative models have been suggested. Steiner launched organic farming in the 1920s and two decades later, agroecology emerged and became one of the foundations of the policies of the Food and Agricultural Organization of the United Nations (“FAO”): “*By creating synergies, agroecology can contribute not only to food production, food security and nutrition, but it can allow us to restore the ecosystem services and biodiversity that are essential to sustainable farming. It can play an important role in reinforcing resilience and in adapting to climate change*”².

Often presented as a specialised agronomic science that, nonetheless, is criticised for its lack of rigour and ability to be implemented³, agroecology has become a trendy word in political and media discourse and the subject of international debates⁴, without those who use it always understanding its precise meaning and scope. This is why this article suggests we pause for a moment to examine the origin and substance of this word, before continuing to examine if and how it has brought together the Common Agricultural Policy of the European Union (“EU”) and French domestic law. We will thus see that (i) this science cannot be detached from political trends and (ii) that it entered the political arena through the vector of the law.

¹ J.-L.Rastoin and G. Gherzi (2010) *Le système alimentaire mondial. Concepts et méthodes, analyses et dynamiques*. Éditions Quæ, 584 pp.

² See <https://www.fao.org/agroecology/overview/en/> (consulted 9 September 2022).

³ G. Ollivier, S. Bellon et al. (2019) “Aux frontières de l’agroécologie. Les politiques de recherche de deux instituts agronomiques publics français et brésiliens” in *Natures Sciences Sociétés*, 27.1, pp. 20-38.

⁴ For example, see <https://www.cirad.fr/espace-presse/communiqués-de-presse/2020/agriculture-transition-agroecologique-iaastd> (consulted 9 September 2022) following the publication of H. R. Herren, B. Haerlin and the IAASTD (dir.) (2020) “Transformation of our food systems - the making of a paradigm shift”, which assesses progress 10 years after the IAASTD report known as “World Report on Agriculture”.

1. Agroecology: an intrinsically political science

The concept of agroecology has been in use since the early twentieth century⁵. Bensing, its pioneer, considered it from the outset to be a “science”, i.e. a “system of knowledge concerning a defined object, developed in a methodical manner which aims to develop it objectively and rationally and to create its laws and principles”⁶. His benchmark work on the subject, published in 1940, entitled “Agroecology, a basic science for agriculture”⁷ attempts correctly to endow agroecology with the scientific depth that should apply to agronomic science concerning plants and animals, and also to rural economics and sociology; he himself having mostly worked on plants⁸. It brings a systemic and complex perspective, which, even though it appears embryonic to our eyes today, maps the factors that link plants with their “natural”, economic and social environments, the cultivation of soil and the use of water, which must be taken into account.

Bensing’s “seed” idea, that agroecology is the application of ecology to agriculture, was carried along to Altieri and his book “Agroecology, the scientific basis of alternative agriculture” published in 1983⁹. In it, Altieri puts forward five foundation principles: diversification, which entails a rejection of monocultures in favour of a “combination of various types of crops and animals within the same farm, or even within the same field”; recycling, which implies reusing as much as possible everything produced by agricultural activity; protecting the soil by adding organic matter using natural methods; limiting losses of water, soil, light energy and genetic diversity; and encouraging “synergies between living creatures to improve fertility and to fight against pests and diseases”. The approach based on, and experimenting with, these principles is still in use today, for example in the book by Dumont et al. which suggests five principles for livestock rearing (2013)¹⁰ or in the report by the high-level experts group on food safety and nutrition of the World Food Safety Committee (2019)¹¹.

From this point of view, agroecology would appear to be an agronomic science, derived from scientific ecology, which has at its heart the interactions of living creatures between themselves and with their environment, to which the principles suggested by Altieri, developed by others, respond well¹². We can thus define it as the science that aims to develop systems of agricultural

⁵ For this section, see: Thierry Doré and Stéphane Bellon (2019) *Les mondes de l'agroécologie*, QUAE, 179 pp. and D. Van Dam, M. Streith, J. Nizet and P. Stassart (2012) *Agroécologie: Entre pratiques et sciences sociales*. Educagri Editions, 309 pp. This first section is based on, among others: L. Bodiguel, “Agroécologie” in F. Collart Dutilleul et al. (dir.) (2018) *Dictionnaire juridique des transitions écologiques*, Institut Universitaire Varenne (LGDJ-Éditions Lextenso), pp. 83-87 and Luc Bodiguel “Du concept d’agroécologie au règlement PSN” in *Revue de l’Union européenne*, forthcoming in December 2022.

⁶ Dictionnaire de l’académie française, 9th edition. <https://www.dictionnaire-academie.fr/article/A9S0812> (consulted 9 September 2022).

⁷ B. Bensing (1940) “Agroecology as a basic science of agriculture” in *Bulletin of the Ecological Society of America*, 21 (2), pp.13-19.

⁸ Doré and Bellon (2019) *op. cit.*, p.16. More prosaically, Schaller wrote that it was about “initially designating the use of ecological methods for research on commercial plants” in N. Schaller “L’agroécologie: des définitions variées, des principes communs”, Centre d’Etudes et de Prospective, French Ministry of Agriculture, Analysis n°59.

⁹ M. A. Altieri (1983) *Agroecology, the Scientific Basis of Alternative Agriculture*. Division of Biological Control, University of California at Berkeley, Cleo's Duplication Services. 173 pp. (out of print).

¹⁰ B. Dumont et al. (2013) “Prospects from agroecology and industrial ecology for animal production in the 21st century” in *Animal*, 7, pp. 1028-1043.

¹¹ HLPE (2019) “*Approches agroécologiques et autres approches novatrices pour une agriculture et des systèmes alimentaires durables propres à améliorer la sécurité alimentaire et la nutrition*” High-level expert group report on food safety and nutrition of the World Food Safety Committee, Rome, p. 47 ff.

¹² This article will not come to an opinion on the agronomic effectiveness of these basic principles, as it beyond the scope of the author’s competences.

production based on fundamental complementarities between a diversity of crops and/or animals, which are accompanied by ecological processes and a search for autonomy¹³.

However, apart from in the works of Bensing and perhaps some of the other pioneers¹⁴, it very quickly becomes clear that agroecology cannot be reduced to such a merely “agronomic” concept, because it is also part of social movements, corresponds to socio-economic practices, is localised and has links to the specialised world that can interpret scientific analyses¹⁵. As Altieri and others say, agroecology was first conceived as an alternative: it is the science of productive and sustainable agricultural systems based on a dialogue between traditional farming practices and modern agronomic, ecological and social-science knowledge¹⁶. The alternative nature of agroecology places it, according to these authors, “next to” or “in opposition to” the predominant food-processing model. Thus, Pierre Rabhi refers to it to defend a life ethic (2015)¹⁷, while Sevilla Guzmán stresses the importance of local knowledge in rural societies and the social struggles that are linked to it¹⁸. In their writings, the political and philosophical dimensions are at the forefront, as are demands for social change. This socio-political point of view makes agroecology one of the foundations of various local or global rural struggles¹⁹.

Recent research by Jouven et al. perfectly traces this alternative, critical dimension of agroecology: “*Agroecology is in opposition to so-called ‘intensive’ agriculture based on a production model inspired by industrial processes that spread across Europe from the 1950s onwards and which aimed to increase the productivity of farm animals and farmland through mechanisation and the use of fertilisers and pesticides*²⁰. *This opposition between agroecology and intensive agriculture is based more than anything on a different view of nature*²¹. *The ‘intensive’ logic is based on human mastery of nature, simultaneously through extensive genetic selection of plants and farm animals and also through control of the environmental conditions in which they are grown or raised, involving often heavy human intervention. the ‘agroecological’ logic is based on a collaboration with nature in which plants and farm animals*

¹³ Bodiguel (2022), *op. cit.*

¹⁴ According to Doré and Bellon (2019) *op. cit.*, p.26, may precursors of agroecology (e.g. Girolamo Azzi, Juan Papadakis, Wolfgang Tischler, Karl Klages and Efraím Hernández Xolocotzi) all had “*a systemic vision which encouraged an inter-disciplinary and comparative approach. Their final position was one of researcher and teacher engaged in the development of alternative agricultural methods to the mainstream methods of the twentieth century, characterised by farming specialisation, a growth in the amount of farmed land and the mechanisation of food production*”.

¹⁵ A. Wezel et al. (2009) “Agroecology as a science, a movement and a practice. A review” in *Agronomic Sustainable Development* 29, pp.503–515: “*Until the 1960s, agroecology referred only to a purely scientific discipline. Then, different branches of agroecology developed. Following environmental movements in the 1960s that went against industrial agriculture, agroecology evolved and fostered agroecological movements in the 1990s. Agroecology as an agricultural practice emerged in the 1980s, and was often intertwined with movements. Further, the scale and dimensions of agroecological investigations changed over the past 80 years from the plot and field scales to the farm and agroecosystem scales. Currently, three approaches persist: (1) investigations at plot and field scales, (2) investigations at the farm and agroecosystem scales, and (3) investigations covering the whole food system.*”

¹⁶ See the French publications of Altieri’s works *L’agroécologie - Bases scientifiques d’une agriculture alternative*, 2013, Corlet, 237 pp. and 1986, Editions Debarb, Paris, 237 pp.

¹⁷ Pierre Rabhi (2015) *L’agroécologie, une éthique de vie* Actes Sud.

¹⁸ E. Sevilla Guzmán and G. Woodgate (2013) “Agroecology: Foundations in Agrarian Social Thought and Sociological Theory” in *Agroecology and Sustainable Food Systems*, vol. 37, pp. 32-44 and E. Sevilla Guzmán (2006) *De la sociología rural a la agroecología*, Icaria, 255 pp.

¹⁹ See, among others, the “Via Campesina” movement.

²⁰ C. Aubron (2021) “Penser l’élevage à l’heure de l’anthropocène” in *La Vie des idées*, 9 November 2021, available at <https://laviedesidees.fr/Penser-l-elevage-a-l-heure-de-l-anthropocene.html> (consulted 9 September 2022).

²¹ A. Javelle (co-ord.) (2016) *Les relations homme-nature dans la transition agroécologique*, L’Harmattan, 234 pp.

are integrated into the natural components of ecosystems in a search for synergies: the crop or livestock farmer's principal role is therefore to manage the environment and then to let nature 'take its course' as much as possible."²² Jouven et al. thus insist on supporting and valuing ecological processes by making the most of a diversity of crops and animals and of their functional "associations, collaborations, complementarities and interactions" in a search for autonomy, adaptation and resilience. This refers back to the systemic and combinational dimension introduced by Bensin and his successors. However, it is repositioned into the context of the struggle against the predominant model.

The alternative or opposition sought by the promoters of agroecology goes beyond the farming system. Research by North American authors has thus shown a desire to place this "thought" at the heart of a new conception of an overall food-production system. This enlarged conception of the role of agroecology is taken up by Gliessman, among others, who states that agroecology is the application of ecology to the study, design and management of sustainable agroecosystems (1998), and then of the whole food-production system (2007)²³. This point of view is found in the definition used by the FAO (2018), according to which: "*Agroecology is a holistic and integrated approach which applies simultaneously ecological and social concepts and principles to the design and management of sustainable farming and food-production systems. It seeks to optimise the interactions between plants, animals, humans and the environment, while at the same time answering the necessity of socially equitable food-production systems within which consumers can choose what they eat and how and where it is produced.*"²⁴.

Agroecology is thus well-defined as an agronomic science inspired by scientific ecology: it is pragmatic and suggests techniques adapted to the individual circumstances of each farm, based on principles that various researchers have attempted to rationalise and on a holistic philosophy that implies that our actions should take into account the global and complex nature of farming and its associated diverse ecological processes.²⁵ However, agroecology is also an engaged science that serves a farming and food-production system that respects its social, ecological and climatic environments, at both local and global levels.

This socio-political dimension, which is more-or-less radical according to its supporters, is simultaneously its strength and its weakness. Whereas it is a good reflection of the complexity

²² M. Jouven et al. (2022) "Comment l'élevage européen peut-il agir sur les leviers de l'agroécologie pour faire face au changement climatique?" in *La revue scientifique Viandes & Produits Carnés*, VPC-2022-3825, 25 May 2022, which quotes U. Gaudaré et al. (2021) *Environmental Research Letters*, 16, 024012: "Productivity is not improved by optimising yields, but rather by the diversity of goods and services provided by farming systems that have strong links to the soil. Such diversity limits, among others, the effect of market forces. Yields per animal or per hectare are generally reduced compared to "intensive" systems, but the savings on additives created by favouring local resources and organic processes, often associated with higher sale prices for the products, allows producers to maintain or even increase their incomes".

²³ S.R. Gliessman (1998) *Agroecology: Ecological Processes in Sustainable Agriculture*. Ann Arbor Press, Chelsea, Michigan, 362 pp.; C. Francis et al. (2003) "Agroecology: The Ecology of Food Systems" in *Journal of Sustainable Agriculture*, 22:3, pp. 99-118; S.R. Gliessman (2007) "Agroecology. The Ecology of Food Systems" in *Journal of Sustainable Agriculture* 22(3): pp. 99-118; S.R. Gliessman (2018) *Defining Agroecology, Agroecology and Sustainable Food Systems*, 42:6, pp. 599-600: "By the end of the 1990s, the definition of agroecology grew to become the ecology of the entire food system". The very recent essay by Pierre Feillet also adopts this approach: P. Feillet (2022) *Pour une éthique de l'alimentation. Apprivoiser la nature*, QUAE, 184 pp.

²⁴ See <https://www.fao.org/agroecology/overview/en/> (consulted 9 September 2022). We should stress the "10 elements of agroecology" (...) which aim to establish a framework for remaking the system to optimise and adapt to local contexts": <https://www.fao.org/agroecology/overview/10-elements/fr/> (consulted 9 September 2022).

²⁵ In this sense, agroecology refers to the objective of sustainable development which presumes a long-term, global approach that is localised with participative actions: L. Bodiguel (2018), "Agriculture durable : la poursuite de la transition juridique" in B. Grimonprez and D. Rochard (dir.) (2018) *La réforme du droit foncier rural: demander l'impossible*, Lexis-Nexis, pp. 181-193, 212 pp.

of thinking about science today and taking into account its political and social dimension, it opens a door to critics: its scientific substance can be questioned because of the risk of the socio-political instrumentalisation it contains; the political ideas it is based on can be weakened, following experiments which lead to some agroecological principles or methods being invalidated, and, more generally, by the intrinsically unstable nature of all scientific knowledge.

Despite these weaknesses, it seems that agroecology has entered the political arena.

2. Agroecology: a science incorporated into agricultural policy

We must acknowledge the formal entry of agroecology into politics when it starts to appear in legal texts. This entry into the legal world allows us to check, on the one hand, whether or not it has been legitimised at the highest levels of government, and, on the other hand, the link between the scientific content of the concept (knowledge, principles, methods, techniques) and its translation into the judicial-political world. Finally, we can also check the judicial scope of legislation in which agroecology is mentioned. We will concentrate on a specific policy, which is at the heart of our investigation, agricultural policy at EU level and in France.

2.1 The Common Agricultural Policy: between marginalisation and indifference

The EU law derived from the Common Agricultural Policy (“CAP”) does not present a very favourable approach to the development of agroecology, or rather, to be more precise, it does not particularly encourage it²⁶. Following the 2017 Communication on “The future of food production and farming”²⁷, the “Farm to Fork” strategy²⁸ provides details of the EU’s “Green Deal”²⁹ for the food-production and farming sector and insists on the necessity of “*improving the efficiency and effectiveness of direct payments by setting an upper limit on grants and better directing them towards the farmers who need them and who meet the threshold requirement for ecological ambition*”, but does not draw any consequences from this statement: the CAP essentially remains focussed on a policy of supporting incomes, regardless of farming practices; and while it clearly allows all agricultural models (traditional, organic, permaculture, agroecology, etc.) to develop in theory, it fails to target financial aid depending on the recipients’ agroecological practices - except in the case of “undertakings concerned with the environment and climate”³⁰ - and it does not encourage the socio-economic changes envisaged by the supporters of agroecology. In this landscape, which has proved to be much less green

²⁶ Bodiguel (2022) *op. cit.*

²⁷ Communication from the European Commission to the European Parliament, the Council of Ministers and the Committee of the Regions “The Future of Food and Farming”, Brussels, 29 November 2017, COM(2017) 713 final.

²⁸ Communication from the European Commission to the European Parliament, the Council of Ministers, the Economic and Social Committee and the Committee of the Regions “A ‘From Farm to Table’ strategy for a fair, healthy and environmentally friendly food system”, Brussels, 20 May 2020 COM(2020) 381 final.

²⁹ Communication from the European Commission to the European Parliament, the European Council, the Council of Ministers, the Economic and Social Committee and the Committee of the Regions “A Green Pact for Europe”, Brussels, 11 December 2019 COM(2019) 640 final.

³⁰ These were formerly known as MAEC (today Article 70, to which should be added the “green” investments under Article 73). This combination could allow the creation of systemic effects to respond to the demands of agroecology.

than it was announced, agroecology is just one of several agricultural practices envisaged for the development of a more sustainable system: according to “Farm to Fork”: “*The new ecological programmes will be a major source of finance for sustainable practices, such as precision agriculture, agroecology (including organic farming), carbon storage in farmland and agroforestry*”. As a logical consequence, the Regulation on national strategic plans (“NSPs”)³¹, which provides a framework for CAP grants, repeats this form of words: Consideration 26 states that it is “*necessary to promote specific sustainable agricultural practices, such as organic farming, an integrated campaign against pests and diseases, agroecology, agroforestry and precision agriculture...*”³². In addition, “*the objectives of the Green Pact will not be directly subject to performance and strategic plan checks*”³³, which further increases the gap between the CAP’s environmental ambitions and the implementation of subsidies to European agriculture.

While agroecology has been mentioned in EU legislation and thus benefits from a form of institutional legitimacy, this recognition is the result of an *a minima* decision: agroecology is on the margins usually reserved for alternative practices and is not the object of any promotional efforts based on specifications and requirements, like those for organic farming, for example, which would have allowed its legal boundaries to be better specified, a common definition to be adopted and it to become more widely known. In other words, while agroecology is mentioned, its philosophy, scientific content and techniques are absent from the CAP.

However, the EU has in its hands instruments that could change and recognise this science and its techniques. The EU’s Committee of the Regions provided them in its Opinion on agroecology dated 23 March 2021³⁴. According to this document, agroecology maximises use of ecosystems as production factors, while simultaneously retaining their capacity to renew themselves, which would allow the “*significant reduction between now and 2030, in the use of chemical fertilisers and pesticides, as well as antibiotics, and an increase in the area of land of ecological interest*” and, as a consequence, to answer the challenge of “*a systemic transformation of food-production methods*”. Based on this, the Opinion included a list of techniques that could be combined to encourage “*more agroecological practices, such as (a) crop diversification, which makes farms less fragile against unknown natural or sectorial factors; (b) long-term crop rotations and growing together plants that produce mutual agronomic benefits; (c) planting trees and hedges and creating ponds and rocky habitats around agricultural fields; (d) growing leguminous plants which naturally fix nitrogen in the soil; (e) mixing species and varieties in the same field; (f) ensuring soil is constantly well covered to avoid its erosion; (g) reappropriation by farmers of local rural seeds and local breeds of animals that are best adapted to the local soil and climate; (h) polyculture and livestock-raising; and (i) the introduction of steps to organically fight against pests and*

³¹ Regulation (EU) 2021/2115 of the European Parliament and the Council of Ministers of 2 December 2021 establishing the rules for aid for strategic plans that must be ratified by the Member States in the framework of the Common Agricultural Policy (strategic plans arising from the CAP) and financed by the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD) and repealing EU Regulations nos. 1305/2013 and 1307/2013, *JOUE L 435* of 6 December 2021.

³² The only ray of light in this vague policy is the hope of is the acculturation of agroecology through the agricultural advice services: Article 15, NSP Regulation.

³³ D. Gadbin (2022) “Réforme de la PAC - Le projet de programme stratégique national aux prises avec les objectifs issus du Pacte vert” in *Droit rural* n° 504, June 2022, study 23, § 9 and 10; See the special dossier on “Agroecology and the CAP” in *Revue de l’Union européenne*, forthcoming November 2022 with articles by Gabrielle Rochdi (“Des stratégies européennes en matière d’agroécologie au règlement d’OCM”), Raphaële-Jeanne Aubin-Brouté (“Suivi et évaluation de la politique agroécologique de la PAC par l’Union européenne”), and Florence Aubry Caillaud (“PSN et normativité environnementale : des avancées à relativiser”).

³⁴ Opinion 2021/C 106/05.

diseases instead of relying on chemical fertilisers and pesticides”³⁵. This takes up some of the major principles and techniques of contemporary agroecology, as well as justifying the fundamental role of agroecology in responding to the worldwide challenge of climate change. The European Parliament, the European Commission and the Council of Ministers deliberately chose not to take account of them during their discussions about the CAP.

The EU thus appears to either marginalise agroecology (as one sustainable practice among so many others), or to make it transparent (through the CAP’s indifference). In contrast to the EU, the French government has demonstrated a particularly favourable approach to agroecology.

2.2 French agricultural policy: between recognition and implementation

Since the Future of Agriculture Law of 2014³⁶, “*public policies promote and offer long-term support to agroecological food-production systems*”³⁷. This statement is not anecdotal because it is written in Article 1 of the Rural Code, which aims to set the objectives for agricultural, food and rural development policies. Agroecology is thus found at the heart of the policy passed by the national Parliament that must be implemented by successive national governments. Not only is the objective set, but its essence and substance are also well defined. The essence includes a three principles: agroecological food-production systems must “*combine economic and social performance, among others through high levels of social, environmental and public-health protection*”³⁸. The substance clearly takes up the scientific principles developed by agroecological thinkers which state that it is an agronomic science based on scientific ecology: “*These systems encourage the autonomy of farms and the improvement of their competitiveness by maintaining or increasing their economic profitability, by improving their added value to food production and by reducing their consumption of energy, water, fertilisers, pesticides and veterinary medicines, particularly antibiotics. They are based on biological interactions and the use of ecosystemic services and the potential offered by natural resources, in particular water, biodiversity, photosynthesis, soil and air, while maintaining their capacity for both quantitative and qualitative renewal*”. At the level of general principles, the legislative direction this appears clear: agroecology is recognised and defined and goals are set for it; on this basis it must be encouraged.

However, it must not be forgotten that agroecology is in competition with other objectives similarly promoted under French law to support different, or even contradictory, agricultural and food-production systems. Thus “*The policy to encourage agriculture and food production (...) has as its goals (...) [to] protect and (...) reconquer France’s food sovereignty and to encourage France’s food independence on the international market, by preserving its agricultural model*”, which is more in favour of maintaining the predominant agricultural model that encourages intensive farming and supply chains; and, above all, the triple-performance objective is directly linked to the development of supply and processing chains “*capable of rising to the double challenge of competitiveness and the ecological transition, in a context of international competition*” ; which makes it extremely difficult to

³⁵ In the same line, but less detailed, see Opinion 2019/C 86/11 of the EU Committee of the Regions on the reform of the CAP of 7 March 2019 given on the Draft Regulation proposed by the European Parliament and the Council of Ministers on the rules governing aid for strategic plans and Opinion 2019/C 353/11 of the EU Social and Economic Committee entitled “To promote shorter and alternative food supply chains in the European Union”.

³⁶ Law n° 2014-1170, 13 October 2014 on the future of agriculture, food and forests, French Official Journal 14 October 2014.

³⁷ Article L.1. II of the French Rural Code.

³⁸ The objective is, among others, to make a contribution “*to the attenuation of, and adaptation to, the effects of climate change*” (Article L.1.II of the French Rural Code).

create an alternative model that does not enter the international market and/or whose profitability is not calculated in terms of the national balance of payments.

The organisation dedicated to the development of agroecology, the Economic and Environmental Interest Groups (“GIEE”)³⁹, reflects the conceptual ambiguity of the law⁴⁰. The GIEE brings together various individuals who “collectively implement a multi-year project to modify or consolidate their food-production methods and systems and their agronomic practices by setting simultaneous targets for economic, social and environmental performance”⁴¹. As this triple performance is directly linked by the Law to agroecological food-production systems (Article L.1, mentioned above), it can be deduced that the GIEE recognised by the French government⁴² reflects the agroecology promoted by it. So research⁴³ shows that the GIEE has adopted the wide-ranging and somewhat vague view of agroecology expressed in the Law, which, for example, has led to the development of permaculture to support methane generators that rely on existing intensive agriculture.

The other French operational legal provisions that can be linked to agroecology have also adopted this very wide-ranging view of agroecology (so wide that it could include everything and its opposite?). So, the opportunity to insert environmental clauses into farm leases⁴⁴ allows landowners to choose specific practices whose execution becomes obligatory under the terms of the lease, e.g. maintenance of a minimum level of ecological infrastructures, leaving meadows fallow, creation, maintenance and management of grassed areas, harvesting procedures, clearing of overgrown land, etc.⁴⁵. While this is a great opportunity to force farmers to adopt more environmentally friendly practices, the insertion of such clauses and the eventual addition of environmental obligations has not become widespread, and even less so in the agroecological meaning of the term⁴⁶. The “Low Carbon” label suffers from the same problem: this mechanism allows farmers (both landowners and tenants) to sign carbon sequestration contracts, for which they receive payment⁴⁷, which can be part of a collective action, under which farmers agree to “reduce anthropic greenhouse-gas emissions” on their farms, in conformity “with a method approved by the Minister of the Environment”⁴⁸. This means that

³⁹ Established by Law 2014-1170, they are covered by Articles L.315-1 and D.315-1 ff. of the French Rural Code.

⁴⁰ L. Bodiguel (2015) “Quand le droit agro-environnemental transcende le droit rural” in *Revue de droit rural*, n° 430, February 2015, dossier 6, pp.43-53.

⁴¹ Article L.315-1 of the French Rural Code.

⁴² Recognition procedure in Article L.315-1 of the French Rural Code.

⁴³ see <https://collectifs-agroecologie.fr/> (consulted 9 September 2022). Note that a large proportion of the projects aim to reduce the use of pesticides.

⁴⁴ Established by Law n° 2006-11 of 5 January 2006 on agriculture, and covered by Articles L.411-27 and R.411-9-11-1 ff. of the French Rural Code. We should stress that two-thirds of French farmland are farmed under the terms of rural leases. See L. Bodiguel (2011) “Les clauses environnementales dans le statut du fermage” in *Semaine Juridique Notariale et Immobilière*, 22 July 2011, n° 29, study 1226, pp.37-48. See also: V. Bouchard (2020) “La reconnaissance de l'efficacité des clauses environnementales dans les baux à ferme classiques” in *Revue de droit rural*, n° 483, May 2020, comm. 89 and B. Grimonprez (2020) “Bail rural et clause environnementale : le passé recomposé” in *Dictionnaire permanent Entreprise agricole*, Bulletin May 2020, 1.

⁴⁵ See Articles R.411-9-11-2 and R.411-9-11-1 of the French Rural Code.

⁴⁶ On this subject, see: L. Bodiguel (2020) “Réflexions sur la fonction sociale écologique du contrat de bail rural en France” in A. Di Lauro and G. Strambi (dir.) *Le funzioni sociali dell'agricoltura, NutriDialogo. Il Diritto incontra le altre Scienze su Agricoltura, Alimentazione e Ambiente*, ETS, pp.101-113, ISBN: 9788846759948.

⁴⁷ Remuneration paid directly or indirectly by the beneficiary of the carbon-reduction rights to his/her contractor. Such beneficiaries will generally be non-farmer third parties, but the legislation allow the possibility for a collective body to be such a beneficiary.

⁴⁸ Decree n° 2018-1043 of 28 November 2018 establishing the Low Carbon mark (as modified by Decree n° 2021-1865), and completed by the Order of 28 November 2018 defining the Low Carbon mark. See <https://www.ecologie.gouv.fr/label-bas-carbone> for further details (consulted 9 September 2022). See J.-B. Millard and H. Bosse-Platière (dir.) (2022) *Le CO₂ vert capturé par le droit, le carbone en agriculture et en sylviculture*, Lexis-Nexis, 202 pp.

this action could correspond to an isolated practice that does not necessarily have to be part of an overall rethinking of the farms' operation and their relationships with their environments.

Two other initiatives also participate in this amorphous movement in favour of agroecology: the "organic"⁴⁹ and "high added-value" ("HVE")⁵⁰ labels. Here, the criticism mentioned above does not apply, because both these labels clearly aim at creating farming systems rather than adding agro-environmental practices. Besides, the French legislation explicitly assimilates "organic food-production methods" with "agroecological food-production systems"⁵¹. In any case, organic behaviours can vary from a farm based on the intensive model which only pays lip service to organic requirements, to a farm whose overall practices and philosophy are based on its interaction with its environment, which is closer to the agroecological philosophy. What is more, the HVE label remains heavily criticised with regard to the standards already imposed by French and EU law; at the end of 2020, the French Biodiversity Office sent a confidential note to the Ministers of Agriculture and Transition stating that the HVE label did not, in the vast majority of cases, offer any environmental benefits whatsoever⁵².

When we examine these different analyses, it appears that the legislative recognition of agroecology in France would certainly seem to be innovative and to have opened the door to the development of agroecological science, but it also must not lead to a disguising of the weakness of the operational measures and the risk of the instrumentalisation of the agroecological philosophy to justify the continued use of the 1960s model of agriculture, a process some have dubbed "greenwashing".

Conclusion

As we have just seen, French law, and, even more, EU law, are, in broad terms, far from perfect: while it is true that they have assimilated the idea of agroecology, their content and scope remain generally vague. This could be deplored and it could be concluded that lobbyists for the predominant intensive food-production sector have succeeded in stifling any real expression of agroecology. However, a possibly deeper cause that touches on the same issues as agroecology does exist in parallel. As the Group of high-level experts on food safety and nutrition of the World Food Safety Committee wrote in their report, "*there is no benchmark group of practices that could be labelled as 'agroecological' nor is there a universally recognised clear scope of what is agroecological and what is not*"⁵³.

Despite this, agroecology certainly belongs to the category of sciences in that it is concerned with a precise object – the farming system, the food-production system and the food system – and that it has been developed in a methodical way to explain objectively and rationally how these systems work, based on wide principles that have gradually been investigated using a range of disciplines, including the humanities and social sciences; however, it remains an

⁴⁹ EU Regulation 2018/848 of the European Parliament and the Council of Ministers of 30 May 2018 relating to organic food production and the labelling of organic products.

⁵⁰ Article D.617-4 of the French Rural Code: "Third-level certification, which allows the use of the phrase 'highly environmentally friendly farm' acknowledges that the entire farm exceeds the thresholds of environmental performance in terms of biodiversity, pesticide-use strategy, fertiliser and water management"; see also Article R.641-57 ff.

⁵¹ Article L.1.II of the French Rural Code.

⁵² See article published in the *Le Monde* newspaper on 25 May 2021. The terms of reference were amended in 2022 by the National Commission for Environmental Certification, and these amendments also provoked criticism (see <https://agriculture.gouv.fr/mots-cles/certification-environnementale> (consulted on 9 September 2022)). See also, on the origins of, and the debate about, the "Highly environmentally friendly farm" status: L. Vilain (2009) "Certification HVE : contribution au débat" in *Pour*, vol. 202-203, no. 3-4, pp.12-15. More generally on quality status labels, see A. Di Lauro (2020) "L'insoutenable soutenabilité des AOP et IGP : quel avenir pour ces signes de qualité ?" in *Revue européenne de droit de la consommation*, 2020/1, p.119.

⁵³ HLPE (2019) *op. cit.*, p.4 and p.37 ff.

experimental science that cannot be separated from real-life trials that will allow us to assess the validity of its knowledge, principles and techniques, rather than a normative science that exists in reference to a norm, rule or model⁵⁴. “*In practical terms, we are seeking evidence of the extent to which [agricultural practices]: (i) are based on ecological processes rather than commercial inputs; (ii) are fair, respect the environment, are adapted to local conditions and are checked; and (iii) adopt a systemic approach which insists on managing the interactions between the different elements, rather than restricting itself to specific techniques*”⁵⁵.

In this context, the law struggles to offer a secure and comprehensive framework. Without a model, it must be used to mobilise the public and private-sector players and not to hinder their experiments. Certainly, it must govern the use of public funds, suggest administrative simplifications, offer support and advice, encourage research and revise and improve early and vocational education. It can take actions to systematise agro-environmental measures⁵⁶. However, in our context of an ecological emergency and potentially fatal climate change⁵⁷, it does not seem reasonable these days to undermine efforts to change things (albeit with a not-insignificant financial impact) by continuing to support in parallel the predominant food-production model or so-called “ecological” practices that only serve to maintain this model that justifies itself by the need to feed the world. The law must definitively and radically take on board agroecology, this multi-disciplinary, complex and systematic science that is looking to the future and aims to protect future generations.

⁵⁴ See, on the various parts of the definition, *Dictionnaire de l'Académie française, op. cit.*

⁵⁵ HLPE (2019) *op. cit.*, p.4 and p.37 ff.

⁵⁶ L. Bodiguel (2020) “Construire un nouveau modèle juridique commun agricole et alimentaire durable face à l’urgence climatique et alimentaire : de la transition à la mutation” in *European Journal of Consumer Law / Revue européenne de droit de la consommation*, 2020/1, pp.29-42.

⁵⁷ See the most recent GIECC reports, available at <https://www.ipcc.ch/report/ar6/wg1/> (consulted 9 September 2022).