



**REPORT ON  
THE STATE OF  
APPLICATION  
OF NEW  
TECHNOLOGIES  
TO HUMAN LIFE**

**New technologies  
applied to agriculture**

**CNECV  
National Council of Ethics  
For The Life Sciences**

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CNECV Annual Report to the Portuguese Parliament on The State of Application  
of New Technologies to Human Life 2023  
New Technologies applied to Agriculture

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The National Council of Ethics for Life Sciences (CNECV), in compliance with Article 3(1)(c) of Law no. 24/2009 of 29 May, which established it, and above all in pursuit of its mission to contribute to the qualification of public policies and to the awareness of society in general on the ethical implications of scientific and technological progress, presents an annual Report to the Assembly of the Republic on the State of the Application of New Technologies to Human Life and the ethical and social implications thereof. The Report concludes with Recommendations addressed to legislators, professionals and citizens on ways of developing the technologies in question, with a view to maximising their benefits and mitigating or eliminating their potential harms.



**CNECV ANNUAL REPORT TO THE PORTUGUESE PARLIAMENT ON THE STATE  
OF APPLICATION OF NEW TECHNOLOGIES TO HUMAN LIFE 2023  
- New Technologies applied to Agriculture -**

***Executive Summary***

**Preamble**

The mission of the National Ethics Council for Life Sciences (CNECV), true to its name, is to analyse and give an opinion on the ethical issues raised by scientific progress and technological innovation in all areas of the life sciences. It analyses the human level, but also the animal and plant levels, i.e. life in all its dimensions, in the balance of ecosystems. The CNECV has had the opportunity to reflect and raise awareness in society about issues related to non-human living beings and the environment, as diverse as those addressed in Opinion 61/CNECV/2011 on synthetic biology, produced jointly with the Bioethics Committee of Spain (CBE), Opinion 62/CNECV/2011 on the ethical aspects of animal experimentation, Opinion 62/CNECV/2011 on the ethical aspects of nanotechnologies and O.G.M.62/CNECV/2011 on the ethical aspects of animal experimentation, the Proceedings of the 11th CNECV Seminar, dedicated to the theme "Nanotechnologies and O.G.M. Science, ethics and society" (2011), the first volume of the collection "Contemporary Issues in Bioethics", entitled "Access to Water: ethical implications of a fundamental right" (2016). In the current mandate, the creation of a specialised Working Group dedicated to One Health gave rise, from March 2022 to November 2023, to a calendar of expert hearings and public debates, culminating in the publication of the collective work "ONE HEALTH: One Planet, One Health, One Ethics" (2023) and, as early as 2024, CNECV Recommendation No. 4 on "One Health, One Ethics".

In this broader context of reflection on the life sciences that the CNECV adopts, agriculture is an issue to be prioritised, given its vital importance, providing the food necessary for the healthy subsistence of humanity, and the complexity that this activity currently involves, requiring relevant social and environmental contributions beyond the original function of food production. As one of the most remote and ancestral of human activities, it has remained essential and indispensable ever since its inception. However, its practices have also evolved over time, benefiting from the technical progress of societies, as has been the case with its marked industrialisation, especially since the Second World War. Today, agriculture is increasingly an area of technological innovation throughout the food chain, from the means of production to distribution to the consumer, with significant social and environmental impacts.

Recognising the importance of agriculture as the backbone of modern civilisations and the health and nutritional well-being of populations, and also aware of the impact of



agricultural activity on biodiversity and the health of ecosystems, the CNECV decided to reflect, on its own initiative, on the ethical aspects of integrating technological innovation into agricultural production.

In fulfilment of its commitment to openness to society, the CNECV has decided to hear the people and organisations it considers necessary for issuing its opinions, and this statement is no exception. It therefore heard Ana Paula Garcia, deputy director general of the Directorate General for Food and Veterinary Science, Gabriela Cruz, president of APOSOLO - the Portuguese Association for Soil Conservation Mobilisation, and Francisco Pavão, vice-president of the Confederation of Portuguese Farmers. The CNECV would like to thank the experts for their generous sharing of knowledge and perspectives, which greatly enriched the work on this opinion.

This CNECV Report, based on the previous reflection and the contribution of experts, aims to contribute, with concrete and urgent ethical recommendations, to the improvement of public policies that encourage and support agricultural innovation, with a fair understanding of its impacts at all levels and as a necessary and urgent way to,

- in global terms, feed the world's population and contribute to the sustainability of the planet
- and, specifically at national level, (i) to promote the production of foodstuffs, contributing to the self-sufficiency of some sectors and their export potential, (ii) to make primary production profitable and provide fair remuneration for farmers, contributing to the settlement of the rural population and the development of rural communities, (iii) to ensure the sustainable management of natural resources and the preservation of biodiversity, contributing to nature conservation and environmental protection.

This is also a way of valorising an activity that has always been vital and remains so.



## **Recommendations**

At the end of this reflection on agricultural innovation, the National Ethics Council for Life Sciences emphasises:

- the inestimable value of agriculture in the production of nutritional quality and safe food, in the fulfilment of its identity, in a world marked by strong demographic growth and contributing to the realisation of the right to food and food security;
- the negative impact of climate change on agriculture and the continuing need for agriculture to adapt to new production conditions without decreasing, but rather increasing, the volume of production;
- agriculture's contribution to the production of public goods in the assumption of its multifunctionality, namely for the balance of ecosystems, the preservation of biodiversity and environmental protection, and the maintenance of rural communities;
- the ethical imperative of agricultural efficiency, increasing food production, adapting to climate change and reducing environmental impacts;

Thus, the CNECV recommends effective investment in agricultural innovation as a requirement for the efficiency of agriculture:

- active and influential intervention with the European authorities and in the successive reforms of the Common Agricultural Policy (CAP) and its regulatory revisions so that it is maximally adapted to the profile of Portuguese agriculture, throughout the country, and in particular with regard to the introduction and development of agricultural innovation adapted to the soil and climate conditions of the various regions;
- of the competent national implementation of the CAP and other European financial programmes, such as the Recovery and Resilience Plan (RRP), in a transparent and swift manner, and in particular in their support for agricultural innovation;
- the formulation of national policies to stimulate the development of agricultural technologies, favourable at legislative level (e.g. less bureaucratic regulations for the use of new technologies), administrative level (e.g. rapid licensing), financial level (e.g. tax benefits) and infrastructure level (e.g. rural Internet network coverage);
- the creation of synergies and mechanisms for permanent dialogue between national and regional policymakers (e.g. alignment, coordination and complementarity between political-legislative initiatives applied to agriculture), agricultural associations and companies (e.g. implementation of innovative business models), academia and research centres (e.g. development of agricultural research), in order to optimise skills and resources and share good agri-environmental practices;
- the responsible use of agricultural technologies to promote the profitability of the activity at the level of the producer and throughout the chain and the stability of consumer



prices, its adaptation to climate change and increased productivity, environmental sustainability and the protection of biodiversity, and the dynamisation and development of rural communities;

- the valorisation of agricultural activity in its identity function of producing nutritious and safe food, and in its multifunctionality of producing a diversity of public goods;

- the motivation of younger generations, who potentially have a greater appetite, training and proficiency for technological innovation, in favour of a sustainable agricultural practice in its three pillars: environmental, economic and social;

- the establishment of services to evaluate the effectiveness of new agricultural technologies prior to their application, involving not only technicians but also end users and rural communities, making their implementation dependent on an analysis of the sustainability of the results.

Unanimously approved at the CNECV's 285th Plenary Meeting, on 16 February 2023.

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