

Evolution of the agriculture / environment interface

For the construction of Mediterranean territorial strategic issues

François Lerin ¹, Claire Bernard-Mongin ^{2,3}

¹ International Association for the Development of Agri-Environment (AIDA), France (<http://www.courrierdelaplanete.org/>)

² CIRAD, UMR INNOVATION, University of Montpellier, CIRAD, INRAE, Institut Agro, Montpellier, France

³ University of Montpellier, Montpellier Research in Management, Montpellier Management (MOMA), France

Introduction

The purpose of this paper is obviously not to deal in detail with the relations between agriculture and the environment, but to propose a sort of very schematic periodisation of their interface in order to shed light on today's strategic opportunities.

The public image as well as the actual situation of agriculture with regard to environmental issues is twofold. On one hand, agriculture is identified as a major polluter, a massive emitter of greenhouse gases (GHGs) and one of the main causes of biodiversity loss^{1,2}. On the other hand, it is also, as evidenced by its long history, a sustainable user of natural resources and protector-producer of semi-natural biodiversity and ecological landscapes³. This duality is particularly marked in the Mediterranean where agriculture has been and still constitutes one of the dominant modes of land use, and which is also identified as one of the 34 biodiversity "hotspots" on a global scale. Many of its territories present important issues of resilience and adaptation to climate change.

We will consider more particularly the territories of the Northern Mediterranean coast and its large islands which represent, on a European scale, an area particularly rich in biodiversity which is expressed through an immense cultural, material and agro-biodiversity heritage, distributed over a considerable number of more or less isolated terroirs, through insularity, and over mountain valleys and plateaus, hills and fragmented and complex hydrographic networks.

A conflicting interface

The so-called process of agricultural "modernisation" over the medium period - but with radicalisation since the 1950s - has created a situation of a **conflicting** interface between agriculture and the environment. This tendential disarticulation between agriculture and the environment has supplanted in many territories the consubstantial relationship between agricultural practices and systems and the "milieu" (environment, resources today). This relationship characterised rural-agricultural activity over a long period - without however excluding phenomena of tension or even localised collapses. It even lasted during the period of pre-industrialisation and increased productivity in the first modernity.

The fact remains that agriculture experienced, post-war, a modernisation movement which greatly limited and even destroyed its positive externalities and, at the same time, massively increased its negative externalities: pollution, resource degradation (water, soil), loss of biodiversity... This process was simultaneously brutal, multifaceted and rapid. Agriculture has intensified through specialisation (agriculture / livestock separation, reduction in rotations, simplification of crop associations, irrigation, etc.), industrialisation and chemicalisation (mineral fertilisers, phytosanitary products). The removal of hedges and all obstacles to an increasingly powerful mechanisation has led to the destruction and simplification of landscapes and the loss of ecological functions. The size of farms and plots has considerably and continuously increased, rural employment and the number of farms have dropped drastically.

Mediterranean agriculture has certainly retained a somewhat special status due to the importance and specificity of family farming (more than 80% of Mediterranean farms are smaller than 10 ha). But part of this agriculture - competitive, intensified, intended for export in particular - has been massively integrated upstream by the supply

of mechanical and chemical industrial goods and downstream by a rapidly expanding agro-food industrial sector - itself in line with large whole trade and logistics and retail systems.

The demand for animal protein has jumped dramatically, leading to an ever greater specialisation of animal husbandry and the creation of increasingly large production units. The food supply of these farms then relies on massive imports of protein from major world exporters. This dual trend of specialisation-intensification of agricultural production and transformation of food consumption has led to a considerable increase in the GHGs of the food system - a major point of reflection on climate change mitigation strategies.

It should be noted that during this period of industrialisation of agriculture, for its part, the protection of the "environment" was first focused on the creation of protected natural areas, of territories for the conservation of remarkable biodiversity, for which the optimum was to limit all human intervention as much as possible. This "preservationist" conception - imbued by the Anglo-Saxon debate on political philosophy - institutes a radical break between protected areas and anthropised areas.

An extended interface

Modernisation-intensification defines a narrow and conflicting interface between agriculture and the environment. But this conflictuality is only tendential, because while contained in the very mechanics of the intensification-specialisation process, it has not been deployed in a homogeneous manner. In addition, since the late 1970s, the problems caused by intensification have been identified and an interface "**extended**" by a fresh look and agro-environmental practices in agriculture is emerging.

As, on the one hand, there is still non-intensified agriculture - often because it is practiced in non-intensive areas. This is particularly true in the Mediterranean and mountainous regions, which concentrate a very large part of the so-called High Nature Value (HNV) agriculture on a European scale, that is to say forms of agriculture whose practices share the preservation of ecological wealth: low use of inputs, high diversity of plant cover and a high proportion of semi-natural vegetation⁴.

On the other hand, since the 1970s, first in a very marginal way and then in a more marked way, the environmental question was gradually taken into account in the regulation of the agricultural sector, in the form of environmental standards, public support to encourage good practices, even Pigouvian taxes on pollution. Indeed, the diagnosis of a global environmental crisis continues to progress nationally and internationally since the Stockholm Conference of 1972, but especially since the Rio Earth Summit, twenty years later, in 1992. Despite procrastination, avoidance measures, lobbying strategies, the agricultural sector is forced to a certain "greening". This is the term chosen by the European Union to introduce environmental measures in the implementation of the Common Agricultural Policy (CAP). Thirty years after its creation in 1962, a first greening was imposed in the early 1990s, and the "second pillar" (of so-called rural development) was introduced in 1999. Later, a complex system of eco-conditionality of direct aid was put in place - the effectiveness of which is however questioned by most evaluation reports.

Furthermore, the management systems for natural spaces integrated anthropogenic practices. National territories were covered with zones at various levels and methods of protection - with in particular the Natura 2000 zones created in 1992 in Europe, but also in France and with equivalents in many countries: the Znieff (Natural Areas of ecological, faunistic and floristic Interest) in 1983, the green and blue belts (2007), regional natural parks (RNP), etc. These territorial management instruments attempt to limit or at least contain the destructive effects of the artificialisation of environments and intensive agriculture.

In addition, the environmental movement has found a base of support among farmers and "organic" agriculture has developed, marginally at first and then over the past decade - thanks to sustained consumer demand - more significantly to the point of representing a substantial percentage of the European agricultural "mix" (7.5% of the European UAA in 2018). In this same agricultural mix, so-called "High Nature Value" (HNV) agriculture has been recognized (at least partially) in the management of the CAP, and several incentive measures make it possible to support farming practices and models favouring biodiversity (mixed farming-livestock farming, pastoral systems, etc.).

The interface between agriculture and the environment, which tends towards conflict in the intensification process, is therefore widening into an area of compromise and contention. The latter is due to the extension of territorial mechanisms for the protection of spaces, resources, biodiversity and landscapes, to the establishment of increasingly strict and restrictive environmental standards and to the environmental conditions imposed for the allocation of aid to a largely subsidized sector in Europe. But this extended interface is far from responding substantially to the challenges it aims to meet.

A strategic interface

Depletion and degradation of natural resources, the sixth extinction of biodiversity and climate change are the three main components of this major and decisive global environmental crisis which is now documented in a consolidated and indisputable manner^{1,2}. In the Anthropocene, the agriculture-environment interface appears to be "**strategic**" in the sense that the transition to modes of food production and consumption is presented in an urgent and compelling manner, as a major element of the environmental transition. In other words: will agriculture be able to drastically reform in order to deconstruct entire areas of its industrialised functioning and take advantage of a strategic window to develop its High Natural Value operations and implement climate, energy and environmental transitions that have become necessary and urgent?

The transitions and transformation strategies will obviously be different for the different components of the Mediterranean agricultural "mix" in which very intensive systems, partially intensified systems and also High Natural Value agriculture coexist. It is undoubtedly more through a territorial approach to agrarian systems and modes of production - taking into account socio-economic issues, resources and the possibilities of the environment - than through an approach by sector that these transitions are benefited and can be accelerated. Likewise, more than through a soilless, capital-intensive innovation dynamic, it is through the fine application of agroecological strategies that ecological intensification and the integration of innovations can take place. It is therefore not a question of decline for these terroirs, but of an intensive transition in knowledge and know-how, for food production that respects human and animal health and the environment

Conclusion

The mountains, islands and sparsely populated areas of the Mediterranean - on the northern coast in particular - formerly abandoned and marginalised for being unsuitable for the introduction of modern techniques of agricultural intensification, today have a window of opportunity to redeploy or at the very least to preserve and use High Natural Value agrarian systems which have endured, but also to initiate agroecological transitions in intensive production systems (huertas and irrigated plains, wine-growing, arboreal terroirs, monospecific forestry, etc.) or strategies for the agricultural reclamation of food-producing areas, which are today abandoned wasteland.

It is not only a question of revitalizing marginalised territories through the strengthening of more sustainable localised food systems, but also of using this heritage agriculture capable of ecological intensification and innovation, as a tool for preserving "hot spots" of biodiversity, linked to the social, cultural and economic functions of these territories.

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François Lerin

Activities, research themes and areas of interest:

François Lerin, social sciences. Member of AIDA (International Association for the Development of Agri-Environment). Senior researcher on environmental and agri-environmental challenges and methodological issues in social sciences (the issue of scales and transdisciplinarity). As scientific administrator in an international Mediterranean organisation for a number of years, he coordinated numerous network “embedded” research programmes (French and European). His work is currently focused on the Western Balkans, member countries and candidate countries based on the relationship between environmental regimes and local situations and mechanisms.

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Claire Bernard-Mongin

Activities, research themes and areas of interest:

Claire Bernard-Mongin works to support environmental transitions at the interface between scientific research, collective action and the making of public policies. A political scientist by training, she specialised in the challenges of natural resource management. With a doctorate in management science, she is particularly interested in the construction of collective strategies for environmental purposes and their instrumentation. Since 2012, she has been working on agri-environmental issues in the Euro-Mediterranean area, in France and internationally, at the Mediterranean Agronomic Institute of Montpellier (2012-2017), at the Ministry of Agriculture and Food (2018-2020), and today at the Centre for International Cooperation in Agricultural Research for Development (CIRAD - UMR Innovation).

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