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Building the agroecological transition: the example of field crops in Champagne-Ardenne

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As the agricultural crisis unfolded in early 2024, characterized by an extreme polarization of the debate, IDDRI proposed an approach to restore the dialogue between farmers, public authorities and other stakeholders in the food system. This approach, based on our experience, has been "live" tested as part of a joint project with Terrasolis and actors in the field crop sector in the Champagne-Ardenne region. What lessons can we draw from this experience to build credible scenarios for the agroecological transition?

Using stakeholders' experience as a starting point for discussion

Carried out between April 2023 and February 2024, the “CarbonThink 2” project, led by Terrasolis, aims to set the Champagne-Ardenne field crop sector on the path to reducing its greenhouse gas (GHG) emissions in line with national carbon neutrality targets. It brought together a wide range of players: farmers, elected representatives and technicians from cooperatives, employees from specialized associations, management centers, chambers of agriculture, interbranches, technical institutes, government representatives, banks, etc., most of whom had already participated in a previous “CarbonThink 1” project. The aim was to capitalize on the achievements of this first project, in terms of understanding low-carbon issues, to overcome some of the limitations it had encountered. Two of these were to go from a *net* GHG balance at farm level (reduction in emissions + storage) between -10 and -15% of GHGs, to a *gross* reduction around 20 to 30%. A second objective was to take account of other components of the value chain, beyond farms.

Discussing environmental ambitions to understand their relevance

Before digging into the construction of a scenario aiming at achieving a certain environmental objective–in this case, a level of reduction in GHG emissions entrusted to the agricultural sector by the National Low-Carbon Strategy (SNBC)–the first step was to discuss its foundations. Indeed, these national targets can often seem arbitrary, disconnected from the field, or even unfair. In this context, the discussion focused on three aspects:

- the priority to be given to maintaining the productive capital of agrosystems, which requires actions to adapt and restore biodiversity as the cornerstone of an effective emissions reduction strategy;
- the need to distinguish between efforts to reduce GHG emissions and those to store carbon;[1]
- the recognition of the specific nature of the agricultural sector in relation to other sectors of the economy in the SNBC, due to the incompressible nature of part of the emissions from livestock and farmland. This recognition has led to significantly lower targets being set for the agricultural sector, of the order of -50% by 2050, when most sectors are expected to eliminate almost all their emissions.

One of the goals of these discussions was to gain a collective understanding of the direction and general philosophy of the SNBC. This constitutes an essential phase to adapt the SNBC to the specific context of a region. Similarly, the local players highlighted the economic constraints and challenges they must deal with, and which must be taken into account to plan an economically viable low-carbon transition.

Defining where the industry starts from in order to determine where it can go

While the levers for decarbonizing field crop farms are relatively well known, their adoption is hampered by issues of economic viability, both at farm level and upstream and downstream. With this in mind, “CarbonThink 2” sought to build on a detailed understanding not only of the diversity of farms in the region, but also of the agro-food industries in which they are embedded. The latter, oriented towards dynamic, capital-intensive bioeconomy outlets, strongly determines farms’ productive orientations: it requires constant, even increasing volumes of Champagne-Ardenne industrial ecosystem’s key products (beet, wheat, rapeseed, alfalfa and barley). With a view to building a scenario that capitalizes on the region's strengths, we have chosen to ensure economic opportunities for Champagne-Ardenne's industries, while accepting in exchange lower volumes for products that are less central to their long-term

survival.

A scenario that identifies the first step, and that needs to be taken further to achieve all objectives

The method tested here has succeeded in involving local players in a process of reflection on how to achieve a greater decarbonization objective than what would be possible by only optimizing current practices. This is an achievement in itself, knowing that the co-construction of the scenario with the project's stakeholders mostly took place in the midst of an agricultural crisis, partly motivated by a rejection of environmental ambitions.

However, based on constant market conditions and the profitability requirements of today's agrifood industries, the transformations envisaged in the scenario do not make it possible to achieve all the objectives set. In concrete terms, the desire to maintain production volumes for the main crops destined to the Champagne-Ardenne industry has major implications for cropping systems. First, it assumes sufficient supplies of synthetic nitrogen fertilizers, which account for the bulk of the sector's GHG emissions. Even if we make ambitious assumptions about efficiency gains through innovation, this will not make it possible to go beyond a -20% reduction in GHG emissions by 2035, whereas the SNBC calls for a -25% reduction by that date. It also reduces the possibility of diversifying crop rotation or developing agroecological infrastructures, whose role in restoring biodiversity–and therefore maintaining the productive capital of agrosystems–is nonetheless essential.

Towards a two-stage transition?

However, the implementation of the scenario co-constructed within the framework of the project is seen by the participants as already very ambitious. It therefore seems necessary to anticipate a transition in several phases. In the case of the Champagne-Ardenne field crop sector, the first phase should take place over the next ten years. It involves fully recouping and taking advantage of the investments that have already been made, while ensuring that no new socio-technical barriers are created to a more systemic transition.

The second phase, to be prepared in parallel with the implementation of the first, must lead to a more structural change in the local production system itself. Only by anticipating these two consecutive transition phases will it be possible to deploy a change of sufficient scale to both maintain long-term productive potential and enable the agricultural sector to contribute to achieving France's climate objectives.

Read IDDRI's and Terrasolis' *Study*: What adaptation and low-carbon transition strategy for the field crop sector in Champagne-Ardenne (France)?

1 On the structure of emissions from the agricultural sector, see Rüdinger, A. *et al.* (2018). Assessing progress in the low-carbon transition in France . Iddri, Study N°12/18, page 26.

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