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*Agricultural and food policy: trajectories and reform*

## **Using foresight exercise to design adaptation policy to climate change : the case of the French wine industry**

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### **Summary of the communication**

“Foresight Studies” are more and more conducted at sectorial or geographical scales, to help policy makers and economic actors to define their strategy of adaptation to climate change (CC) (Hallegate et al., 2011 ; Cairns et al. 2013). However, some of these studies are rather “quick exercises”, in which a panel of experts is consulted to define the expected impacts of CC and to identify adaptation levers for future policy (De Franca et al., 205). In other cases a true foresight methodology (Gaudin, 2005) is developed, leading to build scenarios (i.e. images of the future and their related pathways) on the basis of i) a systemic and participatory approach, ii) the definition of key variables and processes of change (or driving forces) including actors strategies, iii) the selection of assumptions and coherent relations between these assumptions and processes, and iv) the narrative description of scenarios, completed or not by simulation and quantified outputs. This approach can be used in a participatory way in order to i) provide scenarios combining impacts of CC and different options of adaptation, ii) raise awareness of policy makers about CC, and iii) explore solutions that could be implemented along a future policy pathway. As agriculture is dramatically concerned by adaptation to CC, foresight exercise may be relevant to integrate the CC challenge into future agriculture policy (Berkhout et al. 2002 ; Mora et al., 2014).

Such exercise was conducted during the multidisciplinary INRA LACCAGE project (2013-2017), in order to build scenarios for the adaptation of the French wine industry to CC in 2050, and to explore adaptation policy for this industry (Ollat et al., 2016). In France, vineyards are covering 835 000 hectares and generate 250 000 direct jobs. Wine makes up almost 15% of the value of the French agricultural market and it is the second most important export product in France, worth 13 billion € in 2017. But not only is wine of economical importance, it also plays a significant role in the French culture and identity, as well as tourism. The communication presents the outcomes and insights of this foresight exercise which aims at orienting the sectorial policy at both regional and national levels.

We tested a new approach derived from the scenarios method, following two main steps:

### **First step: “classical” top-down foresight approach driven by a group of experts**

- Selection of four adaptation scenarios by crossing the main dimensions of adaptation: 1) technical innovations & change of practices; 2) spatial strategies ; 3) institutional changes.
- Collection of assumptions that could be linked to the development of these scenarios, extracting information from the consultation of 40 researchers and 44 wine producers in Languedoc, Bordeaux and Champagne.
- Selection of 70 assumptions that were combined in a dependent-influence matrix, leading to describe different pathways to each scenario (narrative).

### **Second step: bottom-up participatory approach with regional and national stakeholders**

- Organization of "Foresight workshops" during 2017 in 6 wine regions (Bordeaux, Champagne, Burgundy, Languedoc, Rhône valley, Alsace), bringing together between 60 and 100 stakeholders who interacted about the four scenarios, their pathways and the solutions that could be developed.
- Analysis of information collected from the 6 regional workshops and discussed in the national advisory committee “wine and climate change” (INAO, FranceAgrimer, Ministry of Agriculture, Wine unions, INRA) that has been created to guide the policy makers.

Four scenarios and pathways have been specified in each region: the "Conservative scenario" integrates only incremental changes in the current vineyards; the "Innovative scenario" opens the vineyards to a wide range of innovations, in order to maintain their locations; the "Nomad scenario" gives priority to the relocation of vineyards seeking for new climate conditions; the “Zero-regulation scenario” tests what happens when “anything is possible anywhere”.

The six regional workshops highlighted common perceptions and contributions of the participants (mainly wine producers): limited resilience of current technical systems; increasing need of innovations, including in AOP wines ; defensive position facing the perspective of vineyard relocation... Some regional differences were noted (promotion of irrigation in the south of France vs pest control in Champagne...). Finally 75% of the 400 participants voted for the innovative scenario, arguing that the main issue was “to innovate to stay” and to valorize the individual and collective investment already done in each place (“terroir”). They mainly called for improving R&D policy in the wine industry, at regional, national and European scales.

This exercise has proved to be a successful learning tool in each wine region leading to awareness, capacity building, collective action that help the co-construction of climate strategies. It became a political tool, through the creation of the national advisory committee, with increasing links to policy makers. The exercise also led to launch the Open Innovation Platform on wine and climate change, which is now supported by the EU climate KIC. Finally the foresight contributed to the research agenda highlighting new topics (soil management, CC data mining, design of innovative grape growing systems...) and the need of new participatory method. Lessons are learnt from this exercise to suggest the promotion of foresight in agricultural policy design.

Key-words: Foresight, adaptation to climate change, sectorial policy, France, wine industry

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