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## **[Geographical indications, sustainability and climate change]**

### **Introduction: some economic data on GIs in the EU**

At present, more than 3,000 GIs are registered in the EU27, representing 7% of the turnover of the European agricultural and food sector (2017 data), or 75 billion euros.

As developed by Sylvander et al, GIs have been used for different purposes over time, which explains the current weight of the different sectors under GI. Indeed, GIs are first of all an intellectual protection tool initially used for processed products marketed outside their area of production, mainly wine, dry ham and cheese, which is why these three sectors currently have a significant weight in the GI economy, with some GIs (or groups of GIs in the case of wine) of very large size. GIs have subsequently been used for other purposes over time: market regulation (notably in the context of European wine policy, which explains why a significant proportion of European wine is under GI), rural development (hence the registration of many small-scale GIs and products in all agricultural and food sectors) and more recently resource conservation.

GIs have historically been mobilised in Southern Europe (France, Italy, Portugal, Spain) but all wine-producing countries and some Northern European countries have also taken them up in recent decades (e.g. Germany). At present, at least one GI is registered in each EU country.

Based on their size and level of price differentiation, we can group GIs into four main groups:

- Flagships GIs: high volume and strong differentiation (Parmiggiano Reggiano, Champagne)
- Regional signatures/quality management: high volume but low differentiation (fresh meat, beer, fruit and vegetables...)
- Niche products: low volume and high differentiation,
- GIs whose attractiveness is questionable: low differentiation and low volume.

This economic framing and this historical review make it possible to underline the great economic diversity of GIs and to recall that there is not one typical GI but a multiplicity of situations and trajectories.

### **How sustainable are GIs?**

Looking at the different pillars of sustainability, the following assessments were made for the European Commission:

- Economic: rather yes, the evaluation carried out showed that GIs tended to provide a better income for operators. However, this is not systematic.
- Social: rather yes, with production systems that tend to be labour intensive (impact on employment), many GIs play a role in areas with natural handicaps (e.g. cheese GIs in mountain areas) and differentiated quality products and transparency to consumers.

- Environmental: the situation is more complex. We observe some positive aspects, for example the non-use of water in French wine PDOs (except for derogations) and the extensive systems of many GIs (e.g. Comté). However, we cannot say that GIs generally have environmentally beneficial practices.

The evaluation of GIs for the European Commission had shown that (survey of over 400 producer groups):

almost two thirds of GIs included requirements with a positive impact on the environment (e.g. grazing);

a significant proportion of GIs have part of their production in organic farming.

In addition, on the basis of case studies (18 case studies), about half of the GIs indicated that projects were underway to improve requirements with regard to environmental issues.

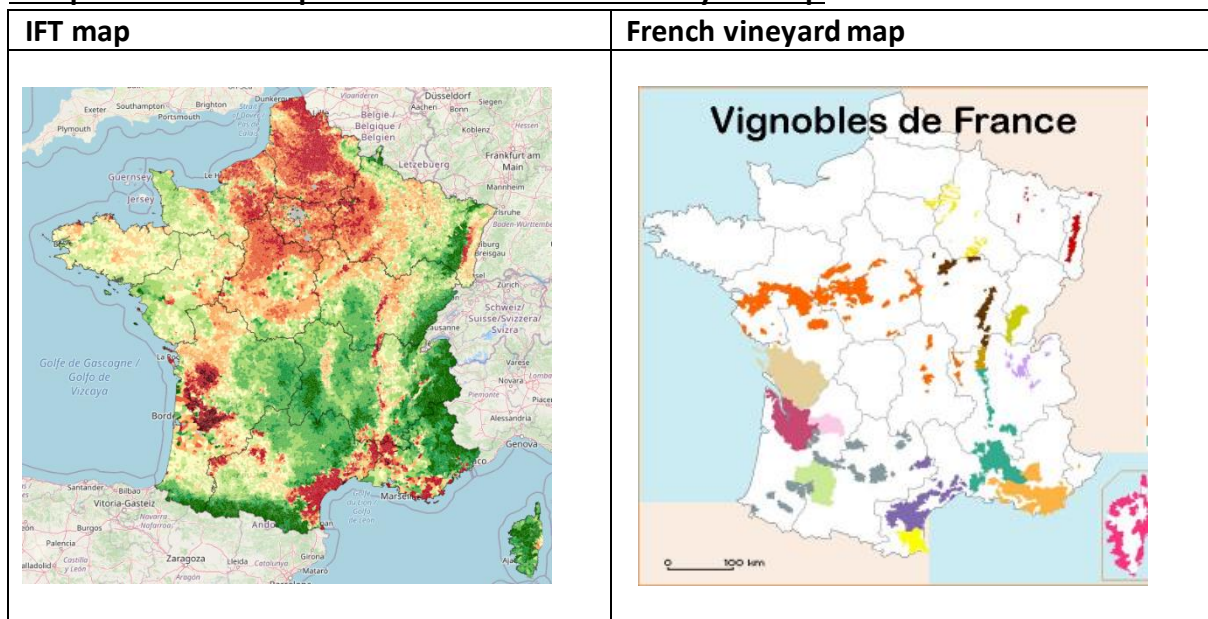
However, the environmental issue is complex. Indeed, it must also be taken into account that many GIs are largely marketed outside their production area (carbon impact of transport). It is one of the foundations of GIs to certify a specific origin and quality for products that travel, this assurance being less necessary in the production area where local consumers are more "experts" on the products. The weight of "flagship GIs" and "regional signatures/quality management" is therefore important here.

It should also be noted that many GIs have a high impact due to the nature of the products that are protected:

- Importance of animal production, which emits greenhouse gases,

- High use of phytosanitary products in vineyards (cf. map of treatment frequency indices (TFI) in France where the Cognac, Bordeaux, Languedoc-Roussillon, Rhône, Burgundy, Loire and Alsace areas clearly appear) but note that the TFI is decreasing between 2016 and 2019 in vineyards in France and that organic vineyards are growing strongly (often organic and GI). Note that the mountain areas appear clearly on the IFT map, where the cheese PDOs are produced.

### Comparison of IFT map in France and French GI vineyard map



On this environmental aspect, it is necessary to recall that this observation is not surprising because the GI system has not, until now, had any specific environmental objectives. Historically, it has been an intellectual protection system, not an environmental label.

o Environment: recent and ongoing developments

It can be seen that environmental considerations are being taken into account with initiatives at different levels:

- National: facilitation of the integration of agri-environmental measures, as in the wine sector in France;

- Local: evolution of GI specifications by producer groups.

The recent revision of the GI regulations will encourage the strengthening of the environmental dimension. However, this is a long process: redefining practices at local level and then registering changes at EU level.

GIs and climate change

The issue of GIs and climate change is traditionally addressed through two axes: adaptation and mitigation.

To what extent are GIs impacted by climate change and can they adapt?

Yes, GIs are strongly impacted by climate change. Like all agricultural and food sectors, and even more so because the climate is the basis of the "terroir" and the production rules for most GIs were defined when global warming was not as noticeable as it is now.

There are two effects: 1) an increase in temperatures which affects biological cycles and 2) an increase in hazards: drought, impact of late frosts, etc.

In a provocative way, we can therefore question the relevance of the GI concept in a context where the climate will change significantly in the coming decades. Operators may then find themselves "prisoners" of a specification that becomes unsuitable for the protected geographical area.

Thus, different strategies are already being implemented to adapt to climate change:

- Derogation from the specifications, on the origin of fodder in case of drought for example,

- Adaptation of specifications, on varieties for adaptation purposes (wine in France).

More profound changes to the specifications will undoubtedly be made, for example on oenological practices in a context where the biochemical characteristics of the grape will be strongly impacted, and therefore the capacity to produce wine that meets GI standards and consumer expectations.

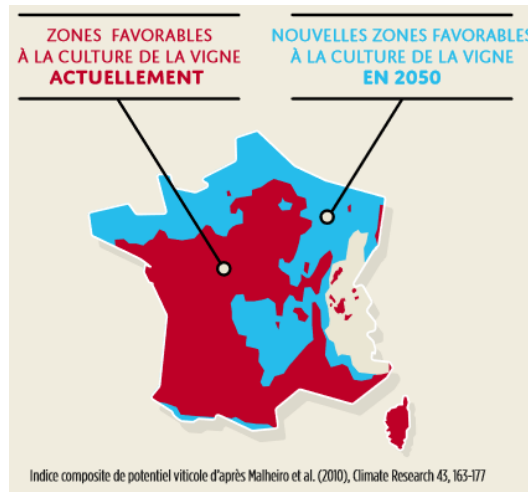
Work in France has developed four scenarios (Aigrain et al. 2019) for the year 2050 concerning French vines (strongly under GI) and climate change. In each of these scenarios, GIs are disrupted:

- Conservative" scenario where technological and geographical changes are limited,
- Nomadic" scenario where the relocation of vineyards is the preferred adaptation vector,
- Innovative" scenario where adaptation is achieved through the integration of innovations without major relocation of the vineyard,
- Liberal" scenario, which is largely open to all kinds of changes.

These scenarios were submitted to actors in the wine sector. The reactions were varied and the "nomadic" scenario (which means the end of GIs) was particularly unwelcome by the actors consulted.

The LACCAVE project presents a map with the areas that are favourable for wine growing in France and those that will be so in 2050. It is therefore possible that a new vineyard will be created in the northern half of France, without GIs or with new GIs.

### Map of the LACCAVE project - areas suitable for vineyards at present and in 2050



Source: LACCAVE project

Climate change is thus a crucial factor to be considered for new GIs, for the codification of practices in a changing climate context.

To what extent can GIs contribute to climate change mitigation?

GIs have an important role to play in climate change mitigation because of

- The importance of dairy production with grazing, this constitutes a carbon sink in the grasslands,
  - GIs are collective, if several thousand producers are involved in a GI specification, a change in the specification (even if minimal) can have a significant effect on the territory,
- Moreover, GI specifications are based on ancient know-how, which have their roots before the energy euphoria of the last decades, some GI practices can therefore be inspiring in the current context calling for greater sobriety in the consumption of resources and energy.

### Conclusion

GIs have advantages in terms of economic and social sustainability. The environmental advantages are more nuanced, but the consideration of this dimension is increasing among PDO and PGI producer groups, starting with the wine-producing GPs.

GIs are being strongly shaken by global warming, and we are only at the beginning of these shocks. Strong and profound changes will be necessary to perpetuate registered GIs and maintain the relevance of this tool, i.e. codifying practices in a given territory in a changing environment.

GIs also have a role to play in adapting to climate change; they can be a driving force in defining adaptation strategies at the territorial level (their survival depends on it), and contribute to climate change mitigation (importance of carbon-storing grasslands).

Moreover, due to their size and level of differentiation (which may be correlated to some extent with economic profitability), not all GIs have the same capacity to evolve and adapt to environmental and climate issues.

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