

Is (wine) terroir a valid concept under a changing climate?

António Graça^{1*}, Joana Pinho¹, Marta Teixeira¹, Sara Silva¹, Ilaria Vigo², Raul Marcos², Konstantinos V. Varotsos³, Christos Giannakopoulos³, João A. Santos⁴, João Antunes¹, Natacha Fontes¹ and Alessandro dell'Aquila⁵

¹ Sogrape Vinhos S.A., Avintes, Portugal

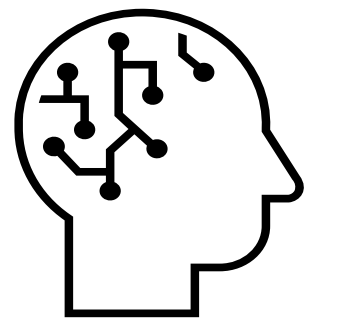
² Barcelona Supercomputing Centre, Barcelona, Spain

³ Institute for Environmental Research and Sustainable Development, National Observatory of Athens, Greece

⁴ UTAD, Vila Real, Portugal

⁵ ENEA, Roma, Italy

* antonio.graca@sogrape.pt



AUTHORS

We are facing a situation of confirmed climate change, the emergence of which is being addressed with the recent approval in Portugal of Law 98/2021, December 31st (*Lei de Bases do Clima*), amongst many other regulations within a fast-evolving landscape of promotion of sustainable practices. In regions where there are geographical denominations, projections point to a significant climate change with expected impacts on products. The Geographical Indication (GI) is a legal instrument for the management of a collective brand. The effect of climate change on the collective brand makes it possible to foresee a potential climate-driven disruption. This work made a sampled survey on measures in those instruments to address and adapt to climate change.



CONTEXT



PURPOSE



METHODS

Meat products	Other products of animal origin	Fruits, vegetables and cereals, fresh or
Cabrito Transmontano	Mel da Terra Quente	Amêndoa Douro
Carne de Bísaro Transmontano / Carne de Porco Transmontano	Cheeses	Batata de Trás-os-Montes
Carne Maronesa	Queijo de Cabra Transmontano / Queijo de Cabra Transmontano Velho	Castanha dos Soutos da Lapa
Carne Mirandesa	Queijo Terrincho	Castanha da Padrela
Cabrito da Beira	Bread, pastry, cakes, confectionary, biscuits and other	Castanha da Terra Fria
Cabrito da Gralheira	Amêndoa Coberta de Moncorvo	Maçã da Beira Alta
Borrego Terrincho	Oils and fats (butter, margarine, oil, etc.)	Azeitona de conserva Negrinha de Freixo
Cordeiro Mirandês / Canhono Mirandês	Azeite de Trás-os-Montes	
Alheira de Mirandela		

Table 1 - List of Portuguese GIs including a climate – taste nexus

- Survey of eAmbrosia Legal Register and Database. eAmbrosia is a legal register of the names of agricultural products and foodstuffs, wine, and spirit drinks that are registered and protected across the EU.
- Relevant keyword search establishing a causal link between climate and product characteristics in GI specifications, at an international and cross-sectoral level
- Search for measures for climate adaptation within GI specifications

Sector	Portugal	Belgium	Germany	UK	China	Italy	Spain	Croatia	France
Wine	Porto PDO	Crémant de Wallonie PDO	Rheingau PDO	Sussex PDO	Yantai Pu Tao Jiu PGI	Dell'Emilia / Emilia	Tarragona	Muškat momjanski /	Picpoul de Pinet
Meat products	Alheira de Mirandela PGI	Jambon d'Ardenne PGI	Schwarzwälder Schinken PGI	Traditional Cumberland	Nanjing Yan Shui Ya PGI	Vitelloni Piemontesi	Carne de Ávila	Lička janjetina	Kintoa
Spirits	Aguardente de Vinho Lourinhã GI	Genièvre / Jenever GI	Schwarzwälder Kirschwasser GI	Scotch Whisky GI	Shaoxing Jiu GI				
Cheese						Bra Raschera	Queso Castellano	Lički škripavac	Brousse du Rove

Table 2 - List of international GIs including a climate – taste nexus

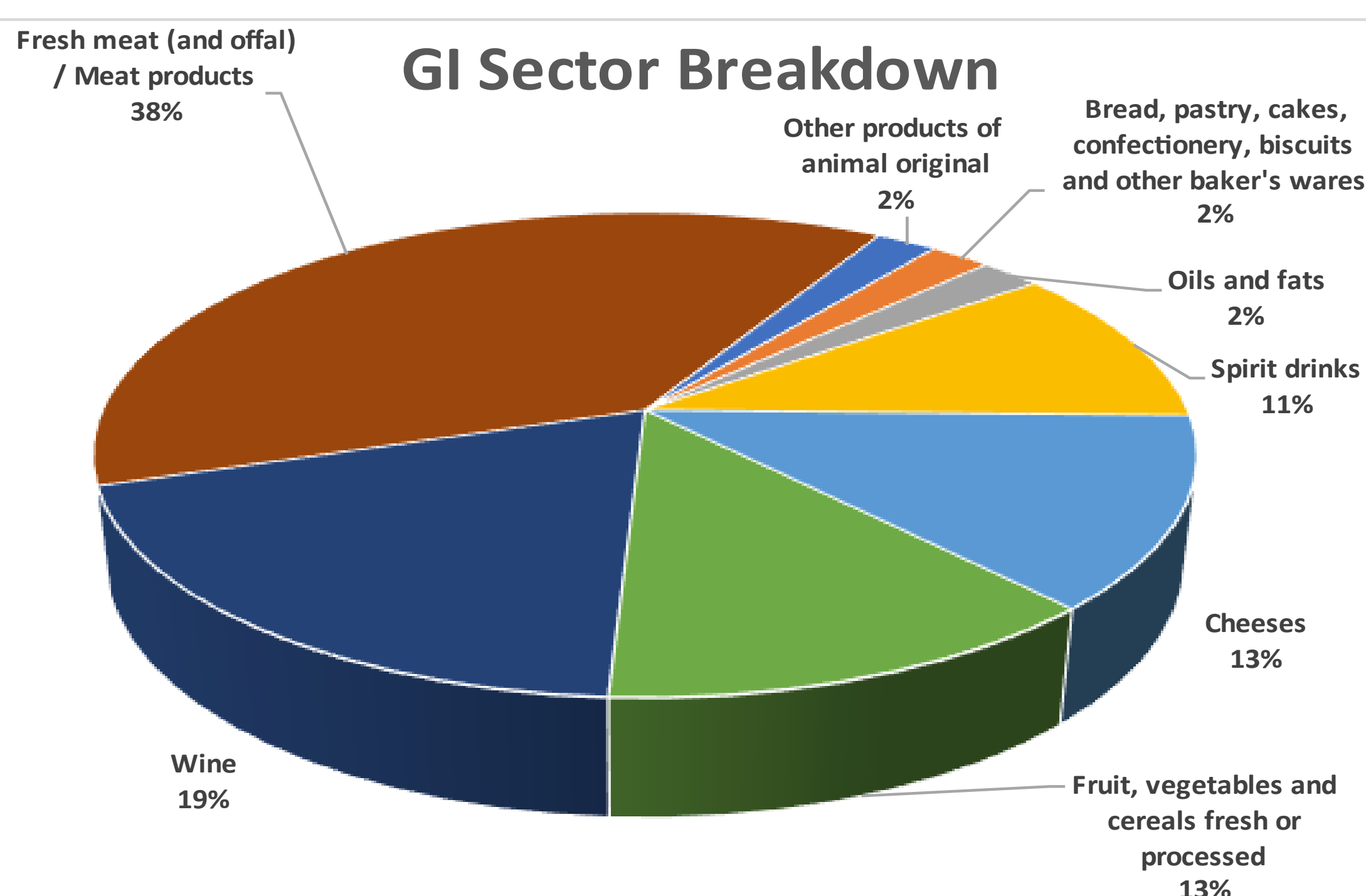
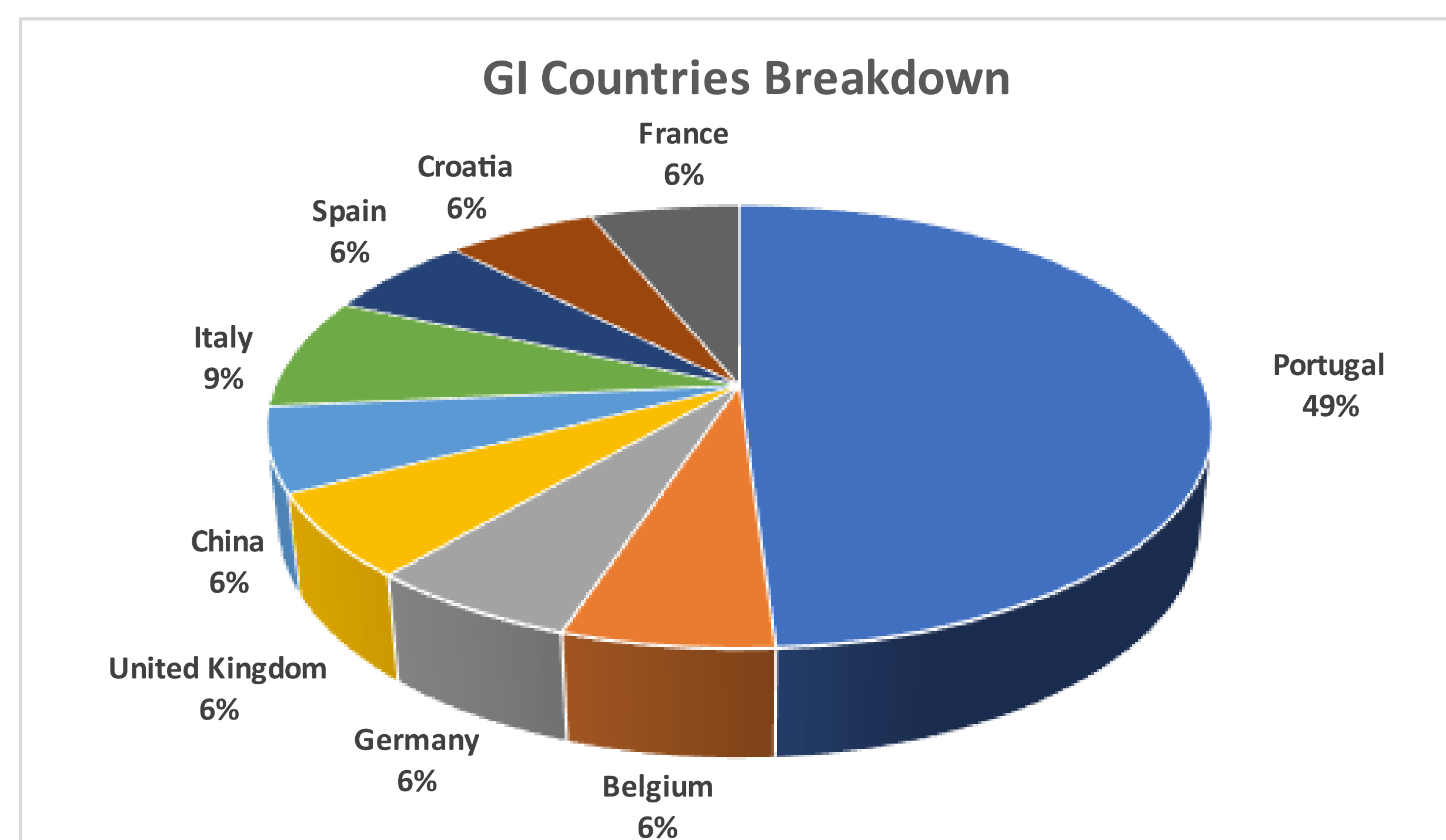
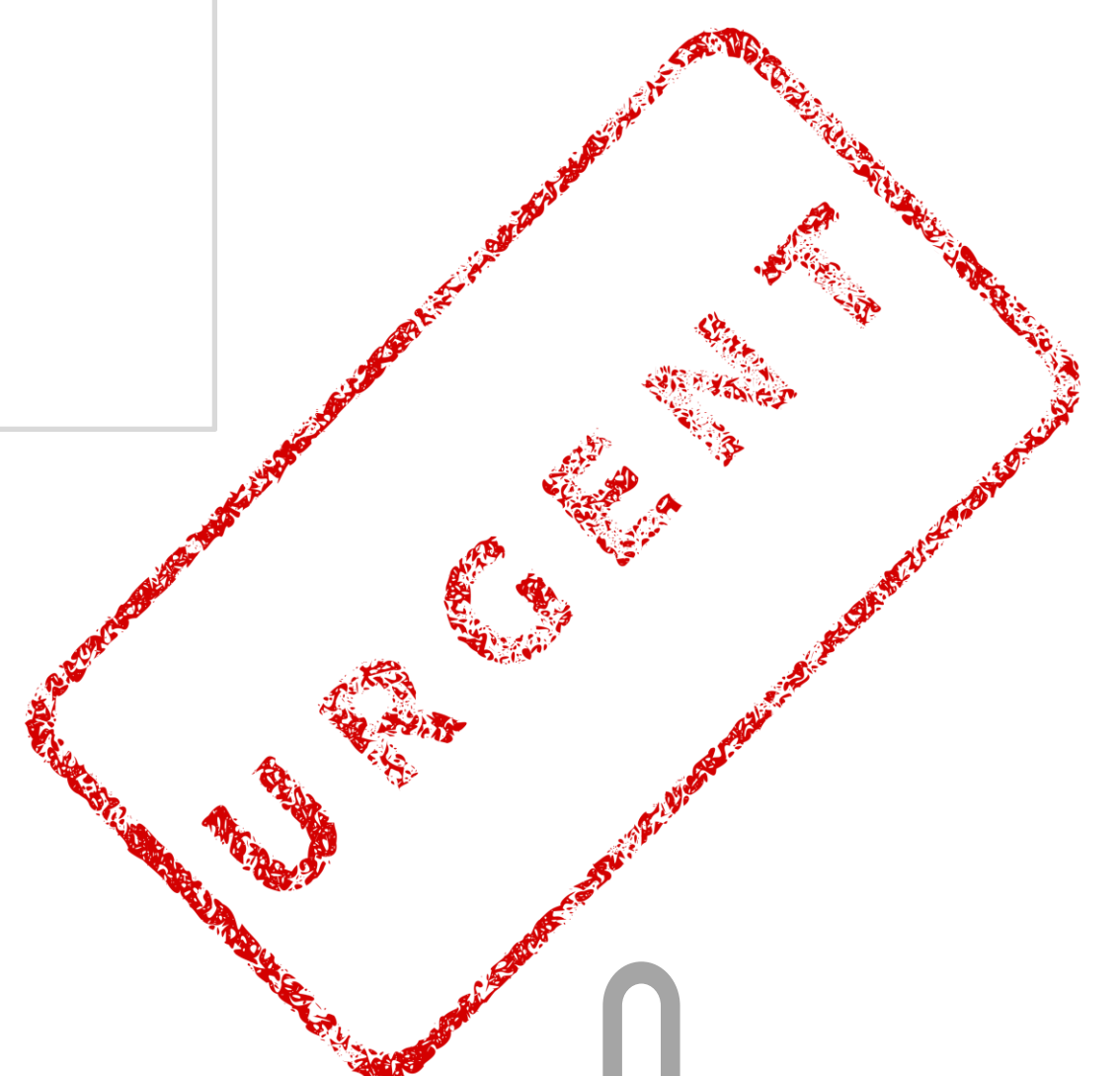


Figure 1 - GIs including a climate – taste nexus by sector and country



RESULTS



CONCLUSIONS

• There is a recognized and effective interdependence between climate and product. Climate and geographic area greatly contribute to the definition of product characteristics. Climatic conditions are the foundation of the legal protection itself.

• **For all analyzed GIs, the reality of climate change is NOT conjectured, nor is there any prediction or anticipation regarding them, with no recommendations for adaptation.**

• **In the absence of a legal framework for adaptation, GI operators may be at a disadvantage towards non-GI operators, in the current context of climate change.**

eAmbrosia Legal Register

<https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/geographical-indications-register>



REFERENCES