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PDO cheese labels: the relationship between price and the degrees of traditionality, quality, sustainability, naturalness, and sensory attributes

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Sustainable Localized Food Systems: an International Conference by Origin for Sustainability and the University of Parma

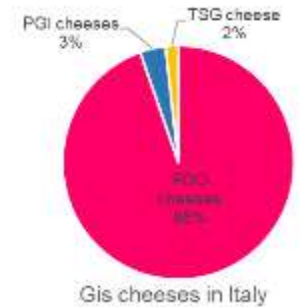
Sustainable Agrifood Systems: Integrating Circular Practices, Bioeconomy, and True Cost Accounting

WORKSHOP 3

ROOM K10 – 15 MIN PLUS Q&A

Introduction (I)

- The cheese industry faces high competition due to a saturated market and food inflation (EC, 2023), consequently, cheese producers and manufacturers are striving to differentiate their products from others.
- Their strategies may involve registering products as GIs (Geographical Indications) e.g., Protected Designation of Origin (PDO) or implementing other food quality schemes e.g., organic and mountain products (Menozzi et al., 2022).
- There are almost 500 types of cheese in Italy, of which 56 have a GIs (53 PDO cheeses, 2 PGI cheeses, and 1 TSG cheese) (IsmeaQualivita, 2023).
- PDO cheeses are cheeses with a strong connection to the origin; from milk production to cheese maturation.
- The PDO assures consumers that every step of the production process occurred within the geographical boundaries designated by the designation of origin.



Introduction (II)

- Suppliers use labeling to communicate these characteristics, which could affect consumers' purchasing decisions.
- However, there are few literature on the elements that suppliers employ on the packaging to set PDO cheese products apart from those of their competitors.
- This study aimed to shed light on the elements they used and to what extent cheese labeling may affect product prices



Products

- Hard cheese
(Parmigiano Reggiano PDO, Grana Padano PDO, and Hard cheese type);
- Fresh soft cheese
(Robiola di Roccaverano PDO and robiola type); and
- String cheese
(Caciocavallo Silano PDO and caciocavallo type).



Objectives

- 1) To explore the different dimensions and subdimensions presented on the labels of selected cheese products in the Italian market.
- 2) To assess the impacts of different dimensions on the sale prices of the cheese products.



Figure 1 Dimensions and subdimensions of attributes from the analyzed cheese labels

Results

Results from multiple linear regressions, Dependent Variable = Price (€/Kg)

| Hard cheese | | Soft fresh cheese | | String cheese | |
|--|--|---|---|---|------|
| + | - | + | - | + | - |
| Organic logo | No brand (base = private brand) | Organic logo | | Cow breed specification | None |
| Cow breed specification | Discount store (base = supermarket) | Cheese specialty store (base = supermarket) | Discount store (base = supermarket) | Cheese specialty store (base = supermarket) | |
| Animal welfare | Open-air market (base = supermarket) | Being PDO cheese (base = Robiola type) | | | |
| Sustainable packaging | | manufacturer brand (base = private brand) | | | |
| Indication on texture | See color of product (transparent packaging) | Notes for degustation | | | |
| Naturalness - without others (i.e. GMOs, Natural) | | | | | |
| Cheese maturation | | | | | |

Note: only Parmigiano Reggiano & Grana Padano

Discussion

- The results suggested that **tradition and quality dimensions** are crucial for staying competitive, as PDO certification could create value-added to the cheese products in the Italian market.
- However, only PDO certification might not be enough, as other dimensions are also important.
- The value of hard cheese products can be enhanced by **sustainable** (organic label, animal welfare, and sustainable packaging), **quality** (cow breed specification, and cheese maturation period), **sensory** (indication of texture), and **naturalness** (without GMOs and natural) attributes.
- Fresh soft cheese can be differentiated by **sustainable** (organic label) and **sensory** (degustation suggestions) attributes.
- **Specific cow breed information** could add value to string cheese.
- Cheese specialty shops are crucial for distributing fresh soft and string cheeses, as their prices are higher than retail chains. However, Parmigiano Reggiano PDO and Grana Padano PDP's prices depend more on cheese maturation period and brands.



Animal welfare



Biodegradable packaging cow breed specification



Sensory indication



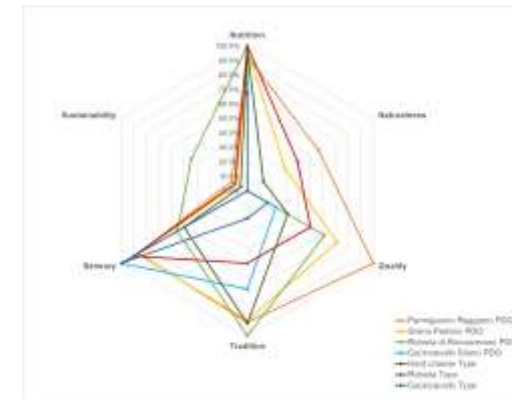
Naturalness



Cheese specialty shop Degustation suggestion

Limitations and Future research

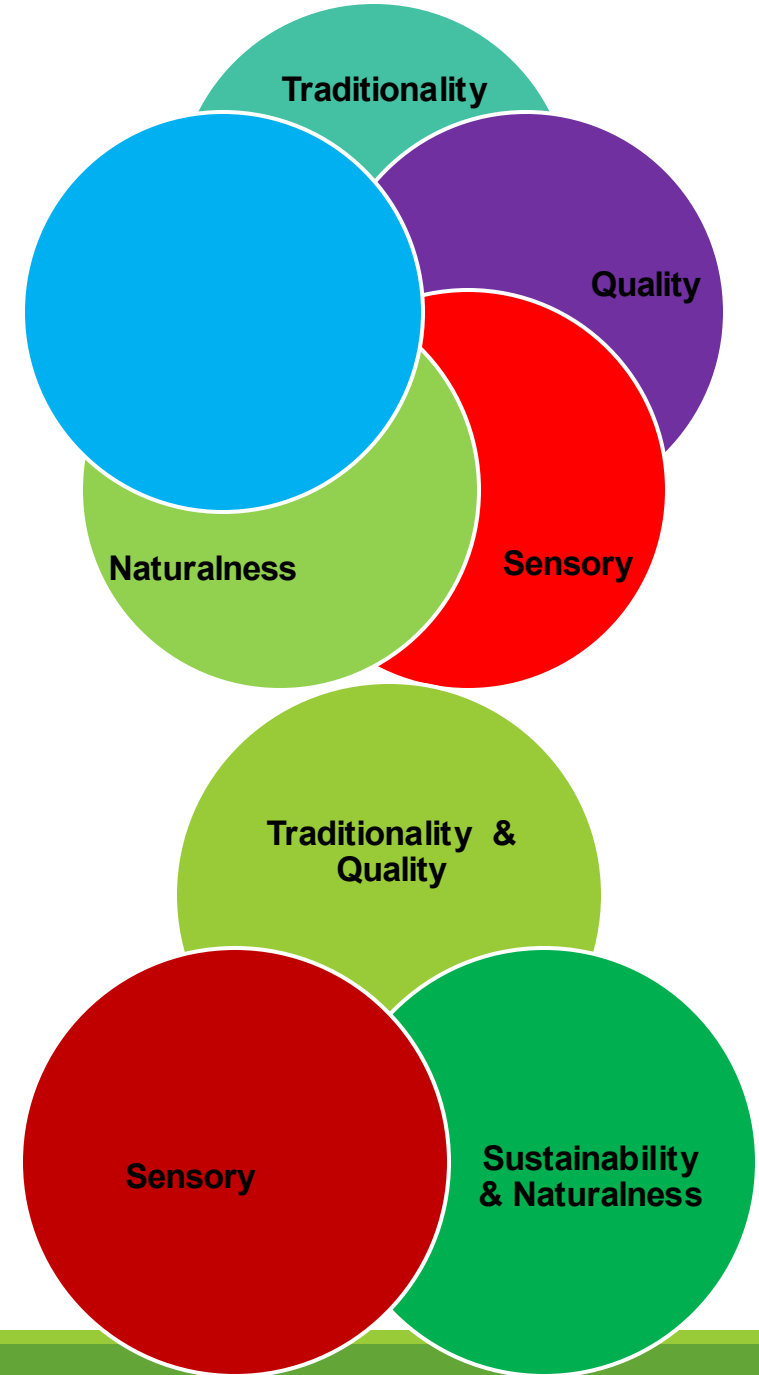
- The survey primarily focused on supermarkets as they are the primary food purchase channel in Italy, accounting for 40% of the market share (ISMEA, 2024).
- The content analysis method, while effective, can be reductive, reducing the significance of complex concepts by focusing solely on words or phrases. The issue was addressed by thoroughly documenting every element in the labels.
- The study focused on label analysis; it did not test actual consumer perceptions or willingness to pay directly.
- Future research could delve into consumers' perceptions of various dimensions, comparing them to the analytical tool's findings.



| Attribute/Levels | Italy |
|---------------------|--|
| | No-label hard granular cheese Parmigiano Reggiano PDO |
| Food quality labels | Mountain Product + Parmigiano Reggiano PDO |
| Brand | Large-scale retailer brand CONAD National brand Local brand GRANAROLO |
| Price | Level 1: EUR 5.60/300 g Level 2: EUR 6.30/300 g Level 3: EUR 7.00/300 g Level 4: EUR 7.70/300 g |

Conclusions

- The findings suggested that higher cheese product prices are associated with an increase in the degree of tradition and quality on a label.
- Sustainability and naturalness can enhance the value of hard cheese, which is in line with contemporary marketing and sustainable label trends, while using transparent packaging reduces its prices.
- Sensory indications could add value to hard and fresh soft cheeses.
- The content analysis tool developed for this study may provide insight into how different dimensions could be promoted for enhancing the value of the cheese products.



References

- Charmpi, C., Vervaet, T., Van Reckem, E., Geeraerts, W., Van der Veken, D., Ryckbosch, W., Leroy, F., Brengman, M., 2021. Assessing levels of traditionality and naturalness depicted on labels of fermented meat products in the retail: Exploring relations with price, quality and branding strategy. *Meat Sci.* 181, 108607. <https://doi.org/https://doi.org/10.1016/j.meatsci.2021.108607>
- EC, 2023. EU agricultural outlook for markets, 2023-2035. Brussels.
- Grunert, K.G., Seo, H.-S., Fang, D., Hogan, V.J., Nayga Jr., R.M., 2024. Sustainability information, taste perception and willingness to pay: The case of bird-friendly coffee. *Food Qual. Prefer.* 115, 105124. <https://doi.org/https://doi.org/10.1016/j.foodqual.2024.105124>
- ISMEA. (2024). I Consumi Alimentari delle Famiglie. Report n°2/2024. ISMEA. <https://www.ismeamercati.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/13158>
- Ismea-Qualivita, 2023. Rapporto ISMEA - QUALIVITA 2023 sulle produzioni agroalimentari e vitivinicole italiane DOP, IGP e STG.
- Li, S., Kallas, Z., 2021. Meta-analysis of consumers' willingness to pay for sustainable food products. *Appetite* 163, 105239. <https://doi.org/https://doi.org/10.1016/j.appet.2021.105239>
- Menozzi, D., Yeh, C.-H., Cozzi, E., Arfini, F., 2022. Consumer Preferences for Cheese Products with Quality Labels: The Case of Parmigiano Reggiano and Comté. *Anim. an open access J. from MDPI* 12. <https://doi.org/10.3390/ani12101299>
- Silvestri, C., Aquilani, B., Piccarozzi, M., Ruggieri, A., 2019. Consumer Quality Perception in Traditional Food: Parmigiano Reggiano Cheese. *J. Int. Food Agribus. Mark.* 32, 141–167. <https://doi.org/10.1080/08974438.2019.1599754>

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Reserarch units:

- Department of Food and Drug, University of Parma
- Department of Agricultural, Forest and Food Sciences (DISAFA), University of Turin
- Department of Soil, Plant and Food Sciences (DISSPA), University of Bari Aldo Moro



<https://pdononpd cheeses.it/>

**Thank you very much for your
attention!**

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