

PROMOTION AND PRESERVATION OF EU AGRICULTURAL PRODUCTS FROM INDIGENOUS SPECIES AND ITS TRADITIONAL KNOWLEDGE

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Abstract

The preservation of local livestock breeds and plant varieties and its associated traditional knowledge of how to use them is becoming increasingly important. Intellectual property rights are a way of controlling access to local and traditional resources. Geographical indications are an important tool to conserve local genetic resources, to regulate access and property rights to them, to strengthen the rural economy and to allow the holders of traditional knowledge to share in the benefits in a fair manner. Collective trademarks are another way of protecting native livestock breeds and plant varieties. Further the Convention for the Safeguarding of the Intangible Cultural Heritage offers an opportunity to protect nonphysical intellectual wealth, such as traditions and knowledge which are considered by UNESCO to be part of a place's cultural heritage. Biodiversity non-governmental organizations may also grant intellectual property rights to preserve autochthonous breeds and traditional knowledge. There are still many native livestock breeds to be revived and saved. Both for reasons of biodiversity and genetic resources, but also as valuable specialties for regional food supply chains. Therefore, there is a need to further explore the market for these indigenous specialties and the traditional knowledge associated with.

Keywords: *EU quality schemes, geographical indications (GIs), national quality schemes, intellectual property rights (IPRs), traditional knowledge (TK), indigenous or autochthonous species, culinary heritage*

1. INTRODUCTION

Specialisation and rationalisation in modern agriculture has led to a reduction of local livestock breeds (Samraus 2014) and plant varieties. As a result, in many cases the genetic potential of indigenous species and its associated traditional knowledge of how to use them is already irreplaceable lost. Hence, the preservation of indigenous species and its associated traditional knowledge is becoming increasingly important. Intellectual property rights (IPRs) are temporary legal monopolies that give exclusive rights to the owner. These concepts, rules and mechanisms represent a way of controlling access to local and traditional resources. In addition, they guarantee the principles of benefit sharing when using them, as laid down in the Convention on Biological Diversity (in short: Biodiversity Convention). Major IPR tools for promotion and preservation of these are:

1.1. EU Quality scheme

The implementations of the European Commission under the legal framework of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) include regulations and directives on geographical indications and collective marks. Geographical indications (GIs) are a major pillar of the Common European Agricultural Policy for over 30 years. Protected geographical indications (PGIs) and protected designations of origin (PDOs) aim at protecting the names of specific products to promote their unique characteristics, linked to their geographical origin as well as traditional know-how used during the production process (Figure 1). Traditional specialties guaranteed (TSGs) in turn highlight the traditional aspects such as the way the product is manufactured or its composition, without being linked to a specific geographical area. Despite their great economic significance (DG Agri 2021), GIs and TSGs are still largely unknown to consumers in Europe (DG AGRI 2018, 2020). To register the name of a product as GI, the EU producers or producer groups need to lay down the product's

specifications (and link to the geographical area, if applicable). IPR concepts, rules and mechanisms such as GIs represent an option to control access to local and traditional resources. Furthermore, they ensure the principles of benefit sharing in the exploitation of these, as promoted in the Convention on Biological Diversity (FAO 2009).

1.2. Collective marks

Collective marks (CMs) are trademarks registered by an association for its members and lay down the rules of use in a binding statute. CMs may refer to a geographical origin as a special feature; however, they do not have to (Figure 1).

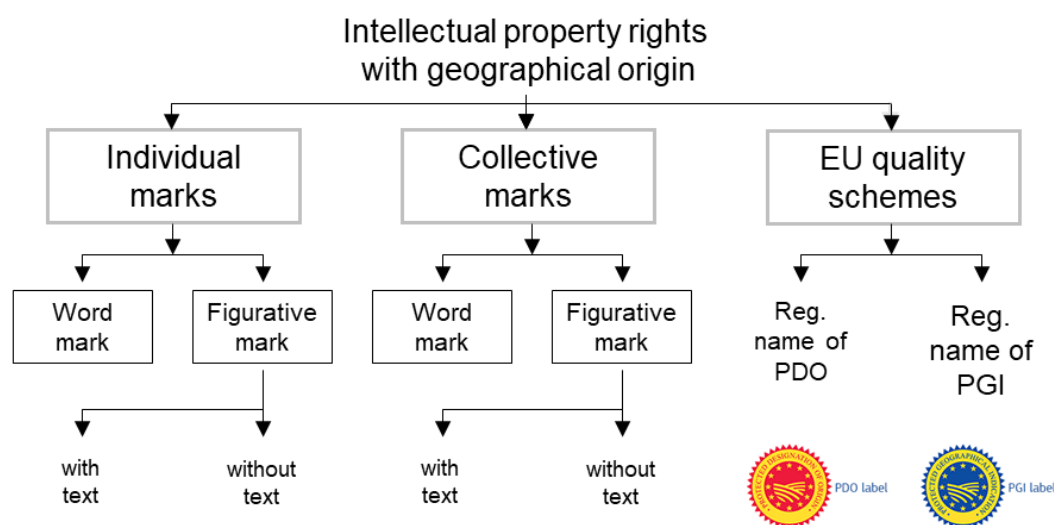


Fig. 1. Overview of intellectual property rights with geographical origin.

Source: own composition

1.3. UNESCO Inventory of Intangible Cultural Heritage

Nationwide Inventories of Intangible Cultural Heritage illustrate which living cultural traditions and expressions are practiced and transmitted in the region. It recognizes creative and diverse cultural expressions and their wealth of traditional knowledge. This includes, specifically - among others - knowledge and practices concerning nature and the universe; traditional craftsmanship and projects of Good Safeguarding Practices.

1.4. Inventories of biodiversity Non-Governmental Organisations

International and local biodiversity Non-Governmental Organisations (NGOs) such as the International Slow Food Foundation for Biodiversity may grant IPRs in order to preserve autochthonous species and traditional knowledge. To register the name of a product in the Ark of Taste of the International Slow Food Foundation for Biodiversity requires producers or producer groups to elaborate a detailed specification or statute (Milano et al. 2018).

Despite their many differences, there exist similarities between above described IPRs e.g. the existence of a producer group and producer guidelines in form of a statute, the existence of a traditional method, a distinctive quality or the link to specific area (if applicable) etc. Figure 2 visualises preservation options for indigenous species and traditional and local knowledge.

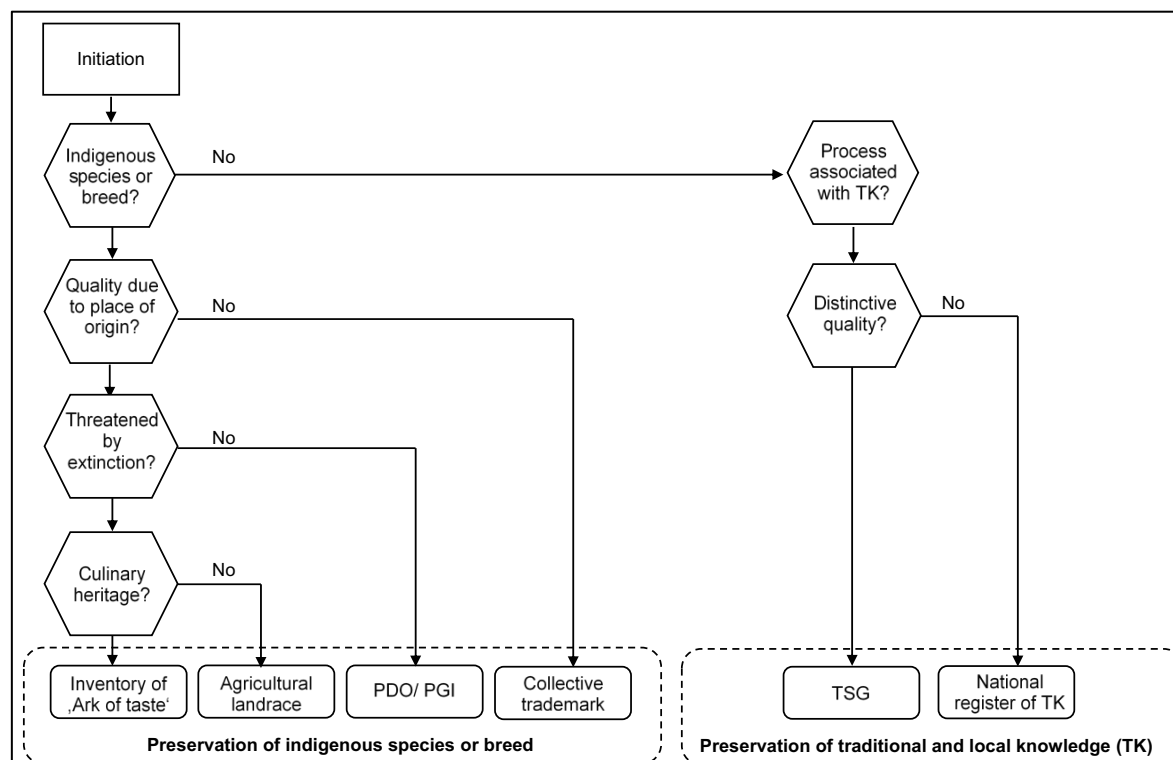


Fig. 2. Decision tree for preservation options of indigenous species, traditional products and local knowledge.

Source: own composition, Wirsig et al. (2014).

2. MATERIALS AND METHODS

2.1. Materials

We used open access IPR registers as data sources in our study in order to reduce transactions costs for gaining data; and to make our approach generally implementable regardless of the study region.

- The Slow Food Ark of Taste, an international catalogue of endangered heritage foods maintained by the global Slow Food movement. There are minor inconsistencies between the national (Slow Food 2021a) and international register (Slow Food 2021b, 2021c). Ark of Taste products may receive the status as a 'Presidia' in the aftermath if complying with the guidelines in the respective product category.
- The EU eAmbrosia database for food, wine & spirit drinks and aromatised wines (EC 2021). In addition to the EU eAmbrosia database the national register of GIs was used (DPMA 2021). Aromatised wines were not considered in this study.
- The European Union trademark register (EUIPO 2021a) and national trade marks registers (DPMA 2021; EUIPO 2021b). The searchability of collective marks is more difficult and the registers differ in their scope of protection.
- The UNESCO Inventory of Intangible Cultural Heritage (UNESCO 2023).
- The Red List of endangered native crops (BMEL 2023a) and indigenous livestock breeds (BMEL 2023b).

2.2. Method

In a first step available raw data was cleared in terms of data applying to autochthone species etc. In a next step variables were extracted from the examined open access IPR registers (Appendix A). Data was completed by available specific information on local level such as surveys, published research etc.

We choose six indicators to compare economic, environmental, and social sustainability of EU agricultural products from indigenous species (Table 1). Data was standardized proportional to the magnitude of the variable for the data point relative to the maximum magnitude of the variable across all data points. In case of the two indicators “Scope of Endangerment” (Appendix B) and “Legal protection” (Appendix C) the values were estimated.

Indicator	Variable(s)
1. Scope of endangerment	Entry in Red List, Slow Food Biodiversity Foundation, or other biodiversity register
2. Financial Aid	National or EU co-funds e.g. EU promotional campaigns
3. Public awareness	National or local consumer awareness of the product
4. Economic impact	Annual Turnover
5. Social impact	Number of producers
6. Legal protection	EU quality scheme, entry in UNESCO Inventory of Intangible Cultural Heritage, TRIPs, Slow Food Biodiversity Foundation register, Other IPR register

Table 1. Indicators for sustainability of EU agricultural products from indigenous species

Source: own compilation

2.2.1. Case study region: Baden-Württemberg, Germany

In order to validate our method, we selected the German state of Baden-Württemberg as case study region. The region is characterised by a high population intensity and an extraordinary consumer purchasing power. Tourism in Baden-Württemberg generates over 52 million overstay night per year and a gross sales of over 25 billion Euros a year (State Parliament of Baden-Württemberg 2023a). The food sector in Baden-Württemberg has a high economic significance with over 12 bn turnover annually. The international relationships of the food industry in Baden-Württemberg exist primarily with the European domestic market (Kaiser 2018). In the the region 39 thousand small scale farms with an average size of 36 ha produce agricultural products (Stala 2023).

The region encompasses a rich culinary heritage of 17 food products and eight wines e.g. 'Württemberg' PDO or 'Baden' PDO registered as GIs under the EU quality scheme and one TSG (Figure 3). More than 2.000 farmers and winegrowers in the region produce these GIs (State Parliament of Baden-Württemberg 2023b). Furthermore seven spirit drinks e.g. 'Schwarzwälder Kirschwasser' GI or 'Hohenloher Birnenwasser' GI are produced by a comparable number of farmers. Another six food products such as 'Württemberger Lamm', 'Wiesenobst' or Fruit from the Lake Constance are applied as PDO, PGI or TSG (MBW Food promotion agency 2023). In total 54 different products with designations of origin from Baden-Württemberg were examined in this study. Nine products with designations of origin from Baden-Württemberg examined in this study are protected as CMs in national and European trademark registers.



Fig. 3. Map of GIs in the case study region

Source: MBW Food promotion agency (2023).

In the Slow Food Ark of Taste 24 breeds or species from Baden-Württemberg are included. The majority of these products are fruits, e.g. Bittenfelder Apple. Followed by breeds and animal husbandry e.g. Hinterwälder Cattle and vegetables e.g. 'Höri Bülle' PGI a red onion with a characteristic shape and colour, traditionally grown on the Höri peninsula on Lake Constance. Four of them are at the same time registered as Slow Food 'Presidi' e.g. the Franconian Grünkern PDO, a traditional processed cereal speciality from a native spelt variety originating from the region of Bauland in the northwest of Baden-Württemberg. Seven Ark of Taste products are also included in the EU GI register (Slow Food 2021a, 2021b, 2021c).

The Nationwide UNESCO Inventory of Intangible Cultural Heritage in Germany includes 131 elements. Many of them are linked to the state of Baden-Württemberg (State Parliament of Baden-Württemberg 2022). Specific examples of food products in the domain of Traditional craftsmanship, Knowledge and practice concerning nature and the universe in Baden-Württemberg include for instance Orchard Meadows or Artisan Cidermaking (German UNESCO Commission 2019).

3. RESULTS

The majority of entries in the available IPR registers for the case study region do not match with indigenous species (for instance Orchard Meadows are species-rich biotopes that are home to numerous animal and plant species. Traditional craft techniques are an integral part of the practice. Indispensable for the preservation of orchard cultivation is not only agricultural knowledge and the associated craft techniques, but also the knowledge of cultivated fruit varieties and the right locations for cultivation. However, they are not mandatorily linked to indigenous species).

After clearing available raw data 23 entries from indigenous livestock breeds or plant varieties remained for further examination. Data was completed by available specific information on regional and local level such as surveys (Schurr & Wirsig 2022) and published research (Schäufele 2020).

Our analysis reveals basically two types of food products from indigenous species and its traditional knowledge in our case study:

- Type A: these EU agricultural products from indigenous species are characterized by potentially high economic and social impact with a strong link to local farmers. Typically, there exists a high public awareness for these products in combination with substantial financial aid from EU, national or regional co-funds. Legal Protection for these products is strong, often they are registered under the EU quality scheme and additionally protected as CMS (Figure 4, A).

However, these indigenous species may differ in their the genetic value and scope of endangerment. Whereas Tett nang hops PGI represents no endangered plant variety, the pig population of Swabian-Hall Pig as basis for the Swabian Hall Pork PGI is classified as observation population (BEO) in the Red List of indigenous livestock breeds (BMEL 2023b). Less than 2.000 exemplars remain that are pure-bred. The breed is white in the centre with a black head and rear and narrow grey bands at the transition from white to black skin, the Swabian-Hall Pig is genetically resistant to stress. The meat is quite dark red in color, marbled and has a strong, distinctive flavor (Slow Food 2003).

- Type B: these products encompass autochthone species with limited economic (although Filderkraut PGI may have to some extent an economic significance in the market) and social impact. In general they receive only marginal financial aid from EU, national or regional co-funds. Legal Protection for these products is strong in general, often registered under the EU quality scheme and at the same time included in the Ark of Taste of the Slow Food Biodiversity Foundation - some of them even listed as Presidia. Typically these indigenous species are endangered (Figure 4, B).

These indigenous species may likewise differ in their scope of endangerment. For instance the Franconian Grünkern PDO is listed in the Red List of endangered native crops in Germany (BMEL 2023a). The Limpurger Cattle, as basis for the Limpurg ox PDO, is the oldest living bovine breed in Wuerttemberg. The breed is listed in the Red List of indigenous livestock breeds (BMEL 2023b) as strongly endangered. On the other hand the may be listed solely on IPR registers from Biodiversity NGOs.

Autochthone type B products may also differ in their public awareness. Typically, there exists a high public awareness for these products e.g. Limpurg ox PDO or Filderkraut PGI (result from a case study in the region of cultivation indicate even higher values of local consumer awareness for Filderkraut PGI c.f. Praks 2018). However in other cases like for Höri Bülle PGI they regarding values may be low.

In order to visualise the results for the autochthone species in the study region we choose spider charts. The main results are presented in the following Figure 4.

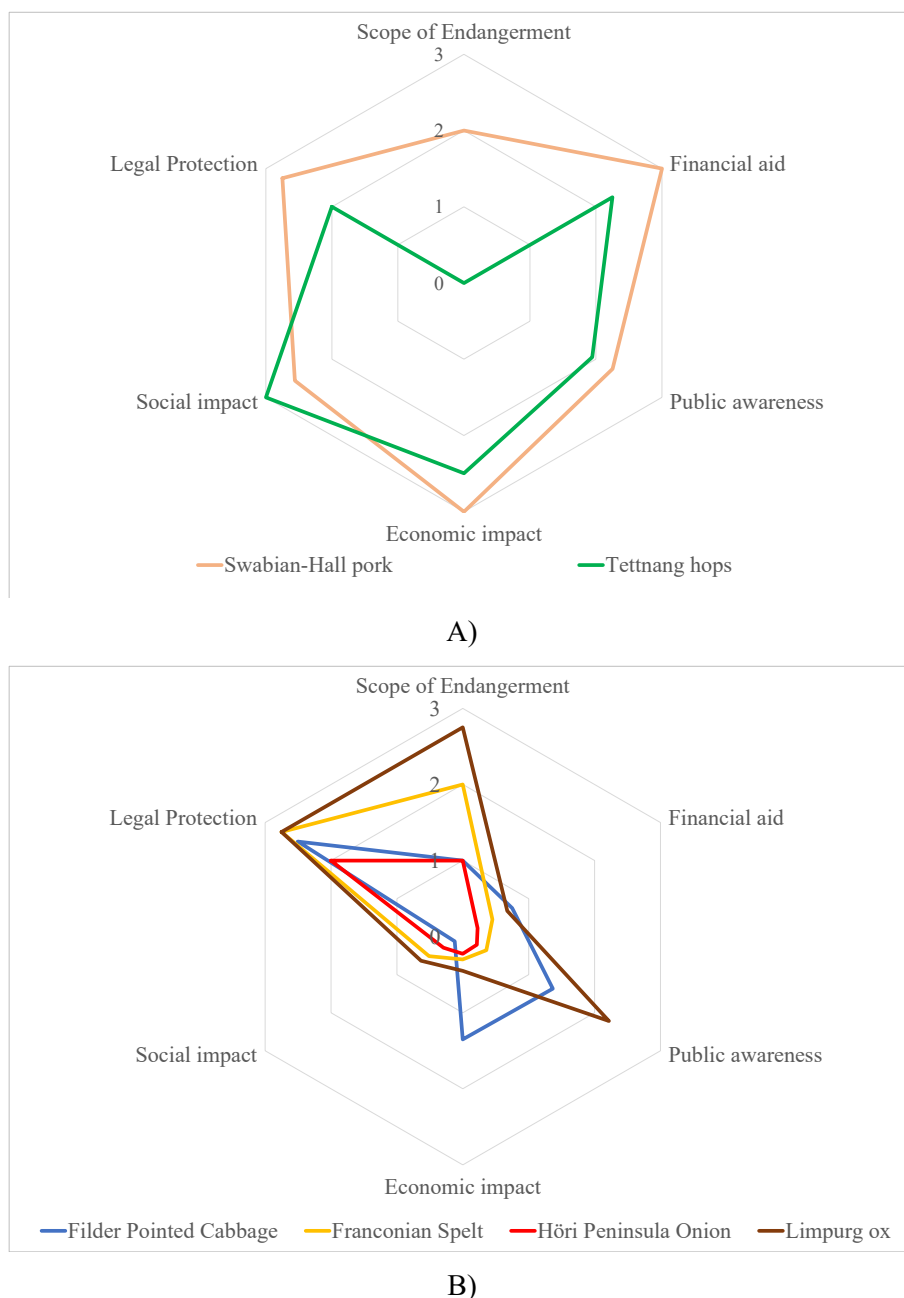


Fig. 4. Spider chart for indicators of sustainability for selected autochthonous species in the study region.

Source: own compilation.

4. DISCUSSION

Our approach may help to allocate local and public resources to those EU agricultural products from indigenous species with limited economic and social significance in the market versus those who are already established. In particular it may improve the role of regional and local public actors on supporting producer bodies of those regarding indigenous species to maintain economic, environmental, and social sustainability (Balling et al. 2022). It may further help to identify measures to deepen cooperation with international and local biodiversity NGOs .

Autochthonous type A products (Figure 4, A) meet the criteria of economic, environmental, and social sustainability. A continuous strengthening of cooperation and links between producers and the

encouragement of collective marketing may help to further improve their position within the market and enhance both the image of these product and the image of their territorial unities (c.f. Ponza 2022).

For autochthone type B products (Figure 4, B) there is a risk that producers will be discouraged from producing, where supply chain governance is not robust enough or support for the supply chain from regional and local public actors is insufficient (c.f. Ponza 2022). A typical representative of this category is Höri Bülle PGI which is cultivated by around 15 small scale farmers on the Höri peninsula on Lake Constance. Although local skills of growing the onion and preserving and caring for the seeds largely contribute to the product's current characteristic and have been handed down from generation to generation (Ponza 2022), public awareness in Baden-Württemberg for this PGI remains comparably low (Schurr & Wirsig 2022). Annual production is about 120 tonnes with an average turnover of 100,000 € for the whole value chain. Despite the fact that the producer body implemented a control system for its small scale GI producers to streamline the system, certification costs represent still a burden.

Ponza (2022) outlines that for these autochthone (GI) products which are at risk of ceasing production further efforts are required. Beside other measures such as strengthening producers' group, he suggests the implementation of effective communication campaigns to highlight the positive externalities of their production such as cultural and territorial links, social connections, positive effects on the landscape, etc.

Our case study revealed also some methodological limitations. Therefore further research is required in order to refine and further develop our approach. Major shortcomings are:

1. The restriction on EU agricultural products from indigenous species appears to be somewhat indefinite and applies only to a minor share of the entries in IPR registers. On the one hand the availability of data restricts the amount of generally feasible variables. On the other hand the resulting arbitrary number of variables may lack important information such as for instance promotional support by relevant bodies etc.
2. Some indicators values are based on fuzzy data. In order to improve the credibility of the used method the estimated factors for the indicator "Scope of Endangerment" and "Legal protection" expert interviews should be used.
3. EU agricultural products from indigenous species are registered in general in only one of the examined IPR inventories such as in the case of the old pear variety 'Palmischbirne'. Many of them are included in the Red List of endangered foods of the German Federal Office for Agriculture and Food. Those indigenous specialties and traditional or local know-how products would become extinct but of the work of international and local biodiversity NGOs.

5. CONCLUSIONS

The preservation of local livestock breeds and plant varieties and the associated traditional knowledge of how to use them is becoming increasingly important. Intellectual property rights are a way of controlling access to local and traditional resources.

There are still many native livestock breeds to be revived and saved. Both for reasons of biodiversity and genetic resources, but also as valuable specialties for regional food supply chains. Therefore, there is a need to further explore the market for these indigenous specialties and the traditional knowledge associated with (Menger et al. 2020) and to promote the work of international and local biodiversity NGOs.

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APPENDIX A: SELECTED VARIABLES FROM OPEN ACCESS IPR REGISTER OF INDIGENOUS SPECIES EXAMINED IN THE STUDY

Variable	Slow Food Foundation of Biodiversity		Inventories of Intangible Cultural Heritage	Collective Mark	EU Quality Scheme		
	Ark of Taste	Presidi			PDO	PGI ^c	TSG
Product name	x	x	x	x	x	x	x
Geographical area	x	x	x	a	x	x	-
Recognition as indigenous species	x	x	a	a	a	a	a
Recognition in biodiversity register ^{a)}	x	x	-	-	-	-	-
Co-funding ^{b)}	-	-	-	-	x	x	x
Turnover^{c)}	-	-	-	-	a	a	a
Consumer awareness ^{d)}	-	-	-	-	a	a	a
Number of producers ^{e)}	a	a	-	a	a	a	a
Red list	-	-	-	-	-	-	-
Other biodiversity register	-	-	-	-	-	-	-

Source: own compilation. x: information mandatory; a: information may be available; -: not applicable. ^{a)} e.g. as Slow Food Presidio; ^{b)} e.g. EU promotional campaigns; ^{c)} Estimated in Euro; ^{d)} e.g. from surveys if available; ^{e)} e.g. from control bodies.

APPENDIX B: STANDARDISATION OF INDICATOR “SCOPE OF ENDANGERMENT”

Variable	Value
Red List: Extremely endangered	3,00
Red List: highly endangered	2,75
Red List: endangered	2,00
Red List: observation	1,75
SF Presidi	1,50
SF Ark of Taste	1,00
Entry in other biodiversity register	1,00

Source: own compilation. Estimated

APPENDIX C: STANDARDISATION OF INDICATOR “LEGAL PROTECTION”

Variable	Value
PDO	2,00
PGI	1,80
TSG	1,60
CM	0,75
UNESCO Inventory of Intangible Cultural Heritage	0,75
IM	0,50
SF Presidi	0,25
SF Ark of Taste	0,20
Other IPR Register	0,20

Source: own compilation. Estimated