

1       **Marketing strategies to self-sustainability of autochthonous swine breeds from different EU**  
2       **regions: a mixed approach using the World Café Technique and the Analytical Hierarchy**  
3       **Process**

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21       **Highlights**

- 22       • Extensive and semi-extensive swine production has decreased enormously in Europe since 1970s.
- 23       • The sustainability of five local swine chains are evaluated using World Café and Analytical
- 24       Hierarchical Process methods.
- 25       • Some common trends were identified to create added value: diversification of production towards
- 26       quality, innovation in traditional products, enhanced standardization, PGI and PDO brands.

- 27 • Properties of grazing systems, the heritage dimension, and improved healthiness of products must  
28 be emphasised as crucial strategies.

29

### 30 **Abstract**

31

32 Extensive and semi-extensive production based on local swine breeds such as Majorcan Black  
33 Pig, Cinta Senese, Gascon, Krškopolje and Turopolje is becoming extremely rare and on the verge  
34 of disappearing in Europe. In this context, the main aim of this study was to assess the potential  
35 feasibility of marketing strategies to act as guidelines for stakeholders along the supply chain to  
36 create and improve added value and match market demands. The sustainability of five production  
37 systems was evaluated together with 60 stakeholders representing five local swine breeds, using a  
38 World Café (WC) method combined with an Analytical Hierarchical Process (AHP). The results  
39 showed that the proposed strategies could differ slightly depending on each system, while the  
40 product strategy was a common marketing priority for most of the stakeholders and represented  
41 all the systems evaluated. Diversifying production towards quality, innovative products, enhanced  
42 standardization, and quality labelling or seals of guarantee, such as the Protected Geographical  
43 Indication (PGI) or the Protected Designation of Origin (PDO), would contribute to the  
44 sustainability of these chains. Advertising the storytelling of the meat products and emphasising  
45 their healthier properties were also considered as positive strategies. To this effect, promotion  
46 should involve improving knowledge of the local systems and raising the profile of the meat  
47 products via public relations (networks, web pages, food and gastronomic events, workshops, and  
48 so on) in the Hotels, Restaurants and Catering (HORECA) sector, stores selling top-quality  
49 products, and local food shops. Better showcasing of these products and keeping the price in the  
50 premium segment would indirectly help the primary sector.

51 By way of conclusion, other more developed local swine systems could be strong competitors,  
52 hence it is extremely important to have an effectively identify and trace all autochthonous swine

53 breed products throughout the production chain. Furthermore, the entire chain must place greater  
54 emphasis on grazing (extensive or semi-extensive), the origin of the swine, and their meat  
55 products. However, of utmost importance is cooperation between farms, firms, and institutions.  
56

57 **Keywords:**

58 Autochthonous swine breeds

59 Local meat products

60 PDO, PGI products

61 Analytical Hierarchy Process

62 World Café Focus Group

63 Marketing

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## 69 **1. Introduction**

70           The sustainable conservation of autochthonous swine breeds and local chains could be partly  
71 achieved by highlighting the high quality intrinsic and extrinsic properties of the products derived from  
72 them and by promoting their consumption by specific market niches (Vitale et al., 2020). Moreover,  
73 traditional food products constitute an important element of European culture, identity, and heritage  
74 (Ilbery and Kneafsey, 1999; Lebret et al., 2018), and are increasingly being proposed as a way to raise  
75 societal awareness of rural landscapes (Soy-Massoni et al., 2019). However, innovation in traditional  
76 products may face some challenges related to the likely contested understanding of these concepts  
77 (Guerrero et al., 2012), making it particularly difficult to develop innovations acceptable to consumers.  
78 Improving breed profitability through niche markets and increased added-value products (i.e. healthier  
79 nutritional properties (Romanzin et al., 2013)), ensuring a return to breed populations high enough to  
80 maintain adequate genetic diversity and hence safeguard breed survival (Bozzi and Croveti, 2013). Varga  
81 et al. (2016) reported that swine grazing had almost disappeared in Europe by the 1970s. In this context,  
82 research on market opportunities and analysis of consumer preferences and the factors affecting  
83 sustainability will be a key strategy, This will focus on the renewability and resilience, thereby aiming to  
84 regenerate the social, environmental and economic impacts (Swisher et al., 2018).

85           Some studies (Brown, 2003; Conner et al., 2009) have concluded that local foods are related to  
86 spatial proximity, freshness, and higher sensorial quality, but for the authors the most important “local”  
87 promotion message may be “Grown in” and the name of the region or city rather than the distance (from  
88 food production to consumers). Howard (2006) also found that consumers prefer to obtain information  
89 that includes the word ‘local’ on labels or in brochures rather than through direct interaction with the  
90 seller. Unlike intensive production, the swine in the five local systems studied are raised  
91 outdoors/extensively and so depend on the resources of their natural surroundings, defined as grazing  
92 habitats in the review carried out by Varga et al. (2016). Moreover, consumers perceive pasture-raised  
93 products as healthy, natural, and environmentally friendly and some of them are willing to pay a premium

94 price for pasture-raised meat-based products (Font-i-Furnols and Guerrero, 2014; Stampa et al., 2020).

95 These Localized Agro-Food Systems also open new perspectives for territorial and regional development

96 projects (Muchnik et al., 2008).

97 In this context, research on market opportunities, analysis of consumer preferences and the factors affecting  
98 their acceptance of different types of product is a crucial strategy to support traditional autochthonous swine  
99 breeds and promote their development. Effective promotional and marketing strategies have been defined  
100 for potential markets through developing the role of location in promoting more advantageous sales methods  
101 for farmers in non-traditional distribution channels (short distribution channels, direct sales). The present  
102 study has a twofold objective: first, to carry out a Strengths, Weaknesses, Opportunities and Threats  
103 (SWOT) analysis on five European autochthonous swine breed production systems to identify the critical  
104 points of the adopted marketing channels; and second, to identify appropriate marketing strategies for each  
105 study case to provide stakeholders along the supply chain with guidelines for enhancing added-value  
106 products and for developing direct marketing alternatives to analyse viability and feasibility.

## 107 **2. Material and Methods**

108 The aim of the TREASURE H2020 project (Horizon 2020 Programme, 2015) was to improve the  
109 conservation status of 20 European autochthonous swine breeds through innovative strategies that  
110 included untapped new market options for these breeds (Čandek-Potokar and Nieto Linan, 2019). Five of  
111 them and their related value chains with contrasting properties in terms of level of development and  
112 organization and representing different EU regions were considered for a study of their marketing  
113 strategies ( Karolyi et al., 2019, Lukač et al., 2019; Mercat et al., 2019; Pugliese et al., 2019; Tibau et al.,  
114 2019). The reason for including the untapped breed is that it was mandatory in the UE call for proposals  
115 (Research and Innovation Action, Grant agreement N°: 634476).

## 116        **2.1.    Experimental design**

117            We followed a mixed method research methodology and applied a joint qualitative and quantitative  
118 approach (Weible et al., 2016), carrying out focus group (FG) sessions using the WC method and the AHP  
119 because of their specific strengths. Five focus group (FG) sessions, one for each of the case studies, were  
120 performed between May and July 2018 in Louey (Hautes-Pyrénées -France), Florence (Tuscany -Italy),  
121 Palma de Mallorca (Spain), Ljubljana (Slovenia), and Zagreb (Turopolje region -Croatia).

122            Each FG included at least 12 stakeholders from each local system, with a balanced representation  
123 of the five stages in the value chain (Fig.1). The suggested shares of stakeholder profiles in the FG were  
124 three farmers, two processors, a civil servant/policy maker working in public administration (either  
125 regional or local), a representative related to the governance of the quality seal (PDO/PGI), if applicable, a  
126 traditional store retailer, a supermarket retailer, a food service representative (restaurants), and two people  
127 working in consumer associations (n= 60 in total). The final number of participants in each profile was  
128 adapted slightly in each case study, depending on the characteristics of the corresponding supply chain.  
129 The WC was applied to gain insights into two sets of attributes in each case study: (a) the SWOT matrix  
130 and (b) the most suitable marketing strategies based on the 4Ps of marketing (Product, Price, Place and  
131 Promotion) for the breed production system. The WC is a structured conversational process intended to  
132 facilitate open and intimate discussions, and share ideas within a larger group to obtain collective  
133 consensus decisions.

134            All the participants were balanced (in terms of number and also the type of stakeholder in the chain)  
135 and separated into four thematic tables (groups for the discussion) with one moderator per table. Each  
136 table was designed to gather information about one of the four components of the SWOT analysis. For 10-  
137 12 minutes, the participants at each table expressed their thoughts about the Strengths, Weaknesses,  
138 Opportunities and Threats regarding the pertinent swine production systems and their meat products.  
139 Further, the groups agreed among themselves on a list of the most relevant items, along with the  
140 moderator. Afterwards, they moved to another table, ensuring that no two participants coincided at two

141 consecutive tables. This rotation was repeated until all the stakeholders had participated at all the four  
142 tables.

143 The most relevant items raised in terms of SWOT at each discussion table were then voted in a  
144 plenary session. Each participant chose three prominent items depending on their choice, and further  
145 ranked them to assign three, two or one point based on the rank. In a second step, participants addressed  
146 the marketing strategies (4Ps). The same procedure was then followed to obtain the preference values for  
147 the 4Ps, conducting four rounds of discussion (one P per table: Product, Price, Place, and Promotion) and  
148 voting in a plenary session to determine the three most important items for each marketing strategy. At the  
149 end of the WC sessions, the information collected was used to design an AHP survey, which was emailed  
150 to the WC participants with a briefing on how to fill out the questionnaire, to be returned within the next  
151 48 hours after reception.

152

## 153 **2.2. The relative importance of four marketing strategies: The Analytical Hierarchy Process** 154 **(AHP)**

155 The AHP was carried out to measure the relative importance of the main elements of the marketing  
156 mix strategies involved in the product, price, place, and promotion policies extracted from the WC  
157 discussion sessions. The AHP methodology has been used previously to evaluate marketing mix elements  
158 (Abedi and Abedini, 2017) but to the best of our knowledge very few studies on this have been directed at  
159 the food sector (Borrisser-Pairó et al., 2016). Prioritizing marketing mix elements can help members of the  
160 supply chain make strategic decisions to attract customers and meet their needs. The AHP is a multi-  
161 criteria decision-supporting method in discrete environments, which aims to breakdown a complex  
162 decision problem into a hierarchy of smaller constituent sub-problems (Saaty, 1977). Determining the  
163 most preferred policy from a set of policies to help the untapped breeds to thrive is a decision problem for  
164 which the top level of the hierarchy represents the marketing mix strategy. It is broken down into a

165 predefined number of characteristics (policy decisions) on the second level and their policy types on the  
166 third level (Fig. 2).

167 The AHP estimates elicited weights ( $w$ ) for each policy and policy level to explain individual  
168 behaviour in choosing the preferred marketing mix strategy. The relative importance or weight ( $w$ ) for  
169 each policy ( $P_n$ ) and policy type ( $L_{n,p}$ ), (where  $n$  ( $1 \dots N$ ) is the number of policies and  $p$  ( $=1 \dots P$ ) is the  
170 number of policy levels) is obtained from pairwise comparisons. To implement the AHP, participants in  
171 the WC discussion were asked to make two types of pairwise comparisons: a) pairwise comparisons of the  
172 policy level; and b) pairwise comparisons between the policies (product, price, place, and promotion). The  
173 respondent first had to indicate the relative importance of the two elements compared. A nine-point scale  
174 was then used to measure the strength of this relative importance using verbal judgments (Saaty, 1977).

175 An example of the pairwise comparison can be seen in Table 1. Using the result elicited from this,  
176 the AHP estimated the weights ( $w$ ) for each policy and policy level to explain individual behaviour in  
177 choosing the preferred marketing mix strategy.

178

### 179 **3. Results and Discussion**

180

#### 181 **3.1 Main results and discussion of the SWOT analysis of local swine systems**

182 The most relevant Strengths, Weaknesses, Opportunities and Threats for Majorcan Black pig  
183 (MBP), Cinta Senese (CS), Noir de Bigorre (NB), Krškopolje Pig (KRS), and Turopolje pig (TP) are  
184 detailed below in Table 2. It provides a summary of the stakeholders' opinions gathered from the SWOT  
185 analysis of each local swine breed system in which differences and common aspects can be appreciated.

186 The strengths of these swine breeds are based on their being differentiated native breeds adapted to  
187 the land and different agro-climatic conditions, reared within traditional extensive systems, and fed using  
188 natural resources (e.g., pasture grass, cereals, legume seeds, figs, almond, acorns, and several  
189 Mediterranean shrubs). Another strength is that the meat and its products have the PGI or PDO seal.

190 Furthermore, cultural heritage and terroir products were highlighted by the stakeholders of the NB and  
191 KRS local systems.

192 One of the main strengths identified in the SWOT analysis was the high quality of the products and  
193 their link to the «heritage patrimony». This is a very important aspect of these local production systems  
194 underlined by Pensado-Leglise and Sanz Cañada (2018). However, their research also shows that these  
195 characteristics are insufficient to generate the incomes needed by farmers, which will put the sustainability  
196 of these chains at risk in the near future. In relation to this, Čandek-Potokar et al. (2018) recommended  
197 that the majority of local swine breed producers still need to be supported by subsidies to ensure their  
198 conservation. However, these authors also reinforce the idea that the best strategy is to breed systems  
199 aiming to reach self-sustainability. This may be possible through an effective marketing strategy of the  
200 meat products obtained from local swine breeds (Čandek-Potokar et al., 2018).

201 The weaknesses included the high costs of farming derived from a low prolificacy (reproduction  
202 rate), the consequent high price of the products, and the small size of the farms. Ageing farmers, product  
203 heterogeneity in terms of quality, and a lack of professionalism, collaboration, and marketing strategies is  
204 challenging for these breeds to adapt to the current market demands. These weaknesses should be  
205 overcome to face current consumer demand. Moreover, these local swine breed production systems should  
206 be in line with the Local Agro-Food System (SYAL), because this would imply a better mutual  
207 cooperation network among stakeholders along the entire chain and new perspectives for public policies  
208 and for territorial and regional development projects (Muchnik et al., 2020).

209 The opportunities were based on strengthening consumer loyalty within the local market, including  
210 the tourist market, and the promotion of traditional products with a PGI or a PDO label, highlighting their  
211 international expansion. Growing market demand for different cuts of fresh meat in the retail market and  
212 for high-quality fresh meat and ready-to-eat formats in the HORECA sector (HOTels, REstaurants and  
213 CAtering) has made the strategy of launching innovative products an attractive business opportunity, with  
214 positive consumer perceptions of local products and production systems.

215           The main threats all centre on competition with other local swine breeds, mainly in the MBP and  
216 NB chain, and with other low-priced commercial meat products made from quality cuts. Also mentioned  
217 were the misconceptions surrounding the word black among the NB and Iberian products. Furthermore,  
218 consumers' negative perceptions regarding the high fat content of meat products and product frauds  
219 increase mistrust among consumers, and their health and animal welfare concerns may determine the  
220 swine breeds' survival. Another concern was regarding the aging farmers who adopt inefficient  
221 management practices.

222           To sum up, one of the main strengths identified from the SWOT analysis was the high quality of the  
223 products and their link to cultural patrimony. This is a very important aspect of these local production  
224 systems, underlined by Pensado-Leglise and Sanz Cañada (2018). However, these authors also explain  
225 that the identified strengths are insufficient to justify the continued payments to farmers, risking the  
226 sustainability of these chains in the near future. They also point out that there may not be sufficient market  
227 support for these local systems, biodiversity, and cultural patrimony. Along these lines, Čandek-Potokar et  
228 al. (2018) recommend that most local swine breed production still need to be supported by subsidies to  
229 ensure their conservation. However, these authors also reinforce the idea that the best approach is making  
230 these breed systems self-sustainable, which may be possible with an efficient marketing strategy for their  
231 products. Another approach is the work of Sanz-Cañada and Muchnik (2016), who emphasized that these  
232 Localized Agro-food Systems (SYAL), built on identity-based food products, could be crucial for a more  
233 sustainable rural development. But, of utmost importance is the cooperation between farms, firms, and  
234 institutions.

235

236

237 **3.2 Main marketing strategies of the local systems based on the 4P analysis: implications for the**  
238 **potential to introduce the products into the market and for conserving the swine breeds.**

239  
240 No scientific or systematized studies have previously been undertaken or published on marketing  
241 strategies for the self-sustainability of the five autochthonous swine breeds. There may only be a few  
242 publications containing descriptive characteristics.

243  
244 *3.2.1 Majorcan Black Pig*

245 The most relevant product policy identified by stakeholders was the diversification of meat products  
246 to increase the position of the MBP brand in the market (37.43%) by including innovations focused on the  
247 nutritional properties of the products, process innovation, and format size, thereby meeting consumer  
248 demands (Vitale et al., 2020), and strengthening the PGI brand (26,75%) (Fig.3). Also relevant was  
249 improving the sensory quality of the products (35.82%), including extending their shelf life and  
250 highlighting their nutritional value. These strategies are similar to the ones mentioned by Guerrero (2001).

251 Regarding the place strategy, increasing the presence of MBP processed food, including *sobrassada*  
252 (seasoned, dried, and fermented sausage with a PGI certification), *porcella* (suckling piglet) and fresh  
253 meat cuts, in local restaurants, was identified as one of the most important strategies (42.98%), together  
254 with enhancing the availability of *sobrassada* in local shops (33.58%). Besides, stakeholders stated that the  
255 PGI Regulatory Council and public administrations must be encouraged to support commercial actions  
256 that ensure the presence of MBP processed food in large retailers, thereby strengthening the MBP image  
257 (21.44%). These findings support the conclusions from Giraud (2002), who suggested that marketing  
258 plans of typical foods should mainly focus on local consumers.

259 The most relevant action (42.29%) for the promotion strategy was to increase the presence of MBP  
260 products at sectoral and gastronomic fairs via public relations, followed by promotion on TV, online and  
261 in the press (31.19%), and the promotion of MBP products in primary schools with public administration

262 support (26.52%). Furthermore, the proposed branding strategy using the TREASURE projects as support  
263 was considered as a "marketing tool that could promote the MBP as a differentiated and autochthonous  
264 swine production system".

265 The stakeholders' price strategy (40.32%) was to maintain a high price based on a premium  
266 category. Some stakeholders also advocated for a different distribution of prices along the production  
267 chain, which would favour higher revenues for farmers, indirectly promoting the development of the  
268 primary sector. This aligns with some policy initiatives such as those launched by the French and Spanish  
269 governments to develop value chain legislation aimed at ensuring a minimum price for farmers.

270

### 271 *3.2.2 Cinta Senese*

272 In this system, product heterogeneity is considered a hurdle for building a loyal customer base.  
273 Thus, the most relevant product strategies were to improve the standardization of the food processing  
274 among producers (38.15%) (Fig.4) and to promote the healthier nutritional properties of the processed  
275 food (35.75%). Modifying some of these characteristics, including reducing the salt and additive content,  
276 would help to better match customer needs. Increasing sales of raw meat should also eventually be  
277 promoted (26.10%); indeed, this type of product can be sold directly by the farmer, representing an  
278 immediate source of income and an interesting tool for rural development (Chambers et al., 2007; Sanjuán  
279 et al., 2012). Moreover, producers believe that the sensory traits associated with CS are more appreciated  
280 in fresh meat than in processed food. There was a certain disagreement among stakeholders regarding the  
281 prioritization of place strategies, with two strategies of almost equal importance emerging. The two most  
282 relevant strategies for the sale and distribution of CS processed food were high-quality restaurants  
283 (37.15%) followed by stores selling top-quality products (36.33%). The latter category also includes GDO  
284 (large-scale distribution) gourmet lines, even though most of the producers were against GDO sales  
285 policies. Despite the increasing difficulties faced by local stores such as butchers' shops to compete with  
286 GDO, they remain an important selling channel, making this placing strategy still worthwhile (26.53%).

287 Moreover, short supply chains and local retailers are preferred over GDO for high added-value products  
288 such as PDO and/or PGI-labelled products, since they can provide consumers with direct information  
289 about meat origin, processing methods, and animal rearing systems (Ilbery et al., 2004; Marsden et al.,  
290 2000).

291 Within this context, the promotion policy using social networks was considered the most important  
292 one for the CS system (38.18%), followed by collaboration with renowned chefs (34.88%) and cooking  
293 schools (26.94%), which might help raise the profile of CS products outside Tuscany. Limited consumer  
294 knowledge of the breed and GDO competition for price polices were considered to be strong hurdles for  
295 price strategies in the CS chain. However, stakeholders firmly agreed that a further price increase could be  
296 an attractive strategy (49.70%) to differentiate CS production systems and acknowledge their value, but  
297 that it should go hand in hand with an enhanced marketing strategy, possibly encouraging tasting  
298 experiences at purchasing points.

299

### 300 *3.2.3 Noir de Bigorre*

301 The product strategy is a priority for the Noir de Bigorre chain-Gascon breed and is related to the  
302 development of products and their image. To strengthen product traceability for consumers, it was  
303 considered that an "identity card" for hams and loins would enable a certain product to be associated with  
304 a particular farmer and the pig feeding method or practices (45.12%) (Fig. 5). The implementation of  
305 open-air drying/ripening rooms (33.28%) and the (increased) possibility of marketing ham slices cut with  
306 a knife (rather than a slicer) are possible innovations in the chain (21.60%).

307 The place strategy is ensured by the coverage of local stores in the PDO area, serving as  
308 ambassadors for the products (41.25%) and improving local product visibility. Working with a high-end  
309 specialized network (31.10%), possibly outside the geographical area of production, would be another  
310 opportunity to promote the distribution and sale of NB processed food.

311           Regarding the promotion strategy, this is mainly linked to its heritage dimension. This result is in  
312 line with the work of Sanz-Cañada and Muchnik (2016), who showed that identity-based food is related to  
313 territory. To support these products, it is important to focus on their showcasing and cooking lessons  
314 highlighting their sensory characteristics (44.68%). Different promotional strategies have been identified  
315 based on the relationship between the food and its story. Training in the product history for all the  
316 stakeholders in the sale of the product is a key element (37.49%). A two-pronged product promotion  
317 strategy was considered, one for the public, based around the PDO and the acknowledgement of values of  
318 the NB chain, and the other for professionals (17.84%).

319           Last, the price strategy is based on a modification of the carcass payment grid to include meat  
320 quality indicators (48.61%) in an attempt to improve the quality of the meat and fat and to manage its  
321 variability.

322

#### 323 *3.2.4 Krškopolje Pig*

324

325           The stakeholders described dry-cured products, fresh meat, and innovative culinary products to be  
326 the three most important product strategies. Following the AHP analysis, the highest relative importance  
327 (Fig. 6) was assigned to dry-cured products (49.46 %).

328           Regarding the place strategy, the AHP analysis revealed that stakeholders considered the most  
329 important channel for the products from the breed (42.99%) to be direct sales, with business gifts  
330 mentioned. This type of distribution is further supported by the significant importance given to state  
331 protocol (use as gifts and in gala dinners) (23.29%) as the third most important distribution channel. Good  
332 high-cuisine restaurants were recognized as the second most important distribution channel (33.82%).

333           Focusing on the promotion strategy, having a prestigious seal was recognized by stakeholders as the  
334 most important (49.05%), and given twice as much weight as the next two key promotion strategies  
335 identified, namely guided tours with tasting (25.92%) and promotion via educational institutions

336 (25.03%). The importance of use of these products as state protocol gifts and the promotion of the breed  
337 and its products in education centres and schools were highlighted. Last, the key price policy strategies  
338 established with the AHP methodology were premium price, differentiated price, and price adjusted to the  
339 sales channel. The premium price strategy was given the greatest weight (42.69%). In summary, the  
340 recognized assets were mainly non-intensive traditional rearing, good quality and flavour, and cultural  
341 heritage, while the main shortcomings were a disorganized value chain and no processed food  
342 standardization. The Localized Agro-Food Systems concept (SYAL) could be an interesting tool to  
343 improve cooperation in this chain (Muchnik et al., 2008).

344

### 345 *3.2.5 Turopolje Pig*

346 The product strategy for TP processed food should rely on high product quality and be used for  
347 product positioning. This is in line with previous research (Cerjak et al., 2014) showing that Croatian  
348 consumers perceive a better quality of traditional products as one of the major motives for their purchase.

349 One of the most important elements of product policy is the standardization of processed food  
350 (40.58%) (Fig. 7). Next to it is the use of quality labels, with priority given to the PDO quality sign  
351 (38.27%) and the organic label, customer perception associated with higher product positioning, purchase  
352 frequency, and willingness to pay, as shown by Bryła (2017). Due to market saturation in terms of  
353 exclusive products, TP processed food should be sold in smaller packages and using innovative strategies  
354 such as sales in gift baskets. Images of the Turopolje region and/or TP should be used on the packages  
355 (21.15%) to highlight the product origin.

356 Regarding the place strategy, TP products could only be purchased directly from producers and  
357 were occasionally served in local restaurants, which was recognised as a major problem. Therefore, while  
358 representing an important percentage (29.09%), direct sales were evaluated as less important than sales in  
359 specialized shops (40.69%) and restaurants (30.22%). These findings are in line with a previous study

360 (Jensen et al., 2019) which showed that Danish local food consumers support short food chains. Only a  
361 few respondents agreed with an online sales strategy.

362 Focusing on the promotion policy, most of the stakeholders stated that the main message they  
363 would convey to consumers is that TP processed foods are healthy, environmentally friendly, and of high  
364 quality, representing the tradition and indigenous nature of the breed and the raw materials involved  
365 (47.23%). However, a few respondents stated that they would segment consumers and use messages  
366 adapted to each type of target. Storytelling, which involved sharing stories about the history and traditions  
367 of the Turopolje region (30.57%), was considered an important promotion strategy. Respondents agreed  
368 on the usefulness of direct marketing, including promotion at fairs and local events, word of mouth, and  
369 others (22.19%). Promotion through social networks (Facebook, Instagram, Twitter, etc.) was likewise  
370 considered a prospective promotional strategy. Last, all stakeholders agreed that TP products should cost a  
371 premium price due to their expensive production and product exclusivity. However, some stakeholders  
372 held a different opinion on the pricing strategy within the supply chain, believing that adding value to a  
373 product (e.g., exclusive packaging) should also influence the selling price (25.21%). Some respondents  
374 emphasized the need for common price negotiation if processed foods were to be standardized.

375

### 376 **3.3 Strategies of the local systems**

377 The extensive or semi-extensive local grazing systems characterizing the five swine breeds  
378 addressed in this study (Fig. 8) are essential towards the conservation and enhancement of high natural  
379 value farming systems, as described by Varga et al. (2016). Autochthonous breeds play a role in  
380 supporting agroecosystem resilience (Hajjar et al., 2008), maintaining socio-cultural traditions, local  
381 identities, traditional knowledge (Nautiyal, 2018), and cultural landscapes (Tisdell et al., 2003), all of  
382 which are public goods and attributes identified in our study.

383           Recent research has demonstrated that the best chance of conserving the genetic diversity of  
384 autochthonous swine breeds comes from a mix of looking for niche markets for the processed food and  
385 increasing awareness among consumers who appreciate the high quality of traditional meat products  
386 (Kallas et al., 2019). To this effect, the stakeholders in the present study identified the following actions as  
387 the best product strategies: enhancing and highlighting the sensory quality of the meat products, boosting  
388 the Geographical Indications and Traditional specialties of the breed, where appropriate (PGI and PDO),  
389 improving the standardization of the food processing among producers to ensure homogeneous products,  
390 and increasing product diversity and traceability. This is in line with the emergent interest in local foods,  
391 where consumers perceive to have higher quality standards and to be tools for preserving tradition and  
392 local know-how (Gilg and Battershill, 1998; Weatherell et al., 2003; Vecchio, 2011). In addition, the PDO  
393 and PGI logos are commonly considered the main purchasing motivation for a shopper with an excellent  
394 knowledge of the EU certification label, according to Vecchio and Annunziata (2011). However, a better  
395 understanding of the relationships between people, products, and territory will be crucial to the survival of  
396 these local systems. Our study hints at organizational differences among these systems. Hence, in some of  
397 the studied chains (Cinta Senese and Krškopolje Pig), better cooperation among the stakeholders and  
398 major collective action is needed. This cooperation would improve the governance and increase  
399 negotiation ability with the other stakeholders related to the marketing strategy, as described by  
400 Pensado-Leglise and Sanz Cañada (2018).

401           Regarding the price strategy, maintaining a high price based on a premium category while letting  
402 consumers taste the product *in situ* (show-cooking, direct marketing) and establishing price differentiation  
403 depending on feeding (extensive vs concentrate) were identified as key elements in our study, which is  
404 also in agreement with Stampa et al. (2020).

405           With regards to the place strategy, the stakeholders identified the need to increase the presence of  
406 traditional products in the HORECA sector and to improve and intensify their presence in specialized  
407 local food shops selling top-quality products and gourmet foods. This strategy, which was identified in

408 most of the chains studied, is in line with Jensen et al. (2019). Similarly, Conner and Oppenheim (2008)  
409 showed that natural food stores were the most promising distribution channel.

410 Several common strategies identified to promote the processed food from local systems were  
411 based on public relations, including food and gastronomic events, tourist events, workshops, guided tours,  
412 direct sales to companies for business gifts, web pages, and collaboration with catering schools, popular  
413 chefs, and athletes. They highlighted that any promotional message should include information about the  
414 history of the product and its healthy properties. However, the concept of “growing in”, referring to the  
415 information about the product origin, as discussed in the study from the USA by Conner et al. (2009),  
416 must be enhanced. This aspect was not given enough consideration by the stakeholders of these European  
417 local systems. Securing public administration support is recommended to develop these aspects.

418

#### 419 **4. Concluding remarks**

420 The participative bottom-up mixed methods approach used in this study involving the key  
421 stakeholders in each untapped breed value chain is novel and enabled us to co-construct the identified  
422 strategies. This methodology increases the likelihood of successfully implementing these strategies since  
423 they are not seen as impositions from external agents.

424 The main parameters of this study of untapped swine breeds were based on non-intensive  
425 traditional rearing, good sensory quality, and cultural heritage. The extensive production systems that  
426 characterize these native breeds are fully aligned with sustainability since they are an essential element in  
427 the conservation and enhancement of high nature value local farming systems.

428 The stakeholders identified having PGI and PDO seals as being of utmost importance to enhance  
429 the sensory quality of the products, improve the standardization and traceability of the food processing to

430 ensure homogeneous products, and to enhance their high price based on the premium category and direct  
431 sales. Iberian meat products could be a strong competition mainly to the MBP and NB breeds and hence  
432 effective product identification and traceability is highly important. The stakeholders of these  
433 autochthonous breeds must place greater emphasis on highlighting grazing as a feeding strategy (extensive  
434 or semi-extensive), the meat products derived from the swine, and their origin.

435

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