Food and agricultural product pilot selection for geographical indication projects[1]

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Abstract

This study assesses methodologies used during the selection of pilot products for the support to development of sustainable geographical indication projects by using the FAO/EBRD project as a case study. Relevant pilot products are essential to provide stakeholders with concrete experience, demonstrative effects and lessons learned in order to disseminate bets practices and facilitate scaling-out of sustainable GI processes. Qualitative data were transformed to quantitative data for product selection because data for local products were insufficient, and standard data were unavailable for each product. Analytic Hierarchy Process (AHP), simple scoring and geographical indication assessment form were used together as product selection methods. Gemlik Olives, the first registered geographical indication product in the Bursa province, was included during assessment as a control group. Six local products with a potential for GI registration were considered for pilot product selection to serve as demonstrative process. Results suggest that the most important selection criteria were "reputation of the product" and "power of the organisation" and first two ranked products selected for the project were Bursa Black Figs and Bursa Peaches.

Keywords: *Geographical indication, Pilot product selection, Analytic hierarchy process, Simple scoring.*

1. Introduction

The contemporary agrifood industry experiences strong competition in both national and international markets, largely due to prices across countries. Primary stakeholders in agricultural and agrifood industries realised that they should not compete solely on price, but should produce high-quality products to differentiate themselves in national and export markets. In recent years, administrators and non-governmental organizations in some provinces/regions began to examine the commercialization of local products because they are accepted as quality products and are an effective tool to differentiate in the market. Local products have characteristics that are inherent to their origins, giving products a reputation.

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A specific quality means that some characteristics differentiate the product from others in the same category (Vandecandelaere *et al.*, 2010).

Agricultural and food products have long been associated with unique characteristics and heritage aspects affiliated with their location of origin. Geographical names have been used since classical times to identify products of exceptional quality. Through the ages, a number of products identified by their name of origin emerged and, more recently, have established a niche in food and beverage markets (Deselnicu *et al.*, 2013). Researchers indicated that consumers perceive local foods as authentic, fresher, tastier, safer, healthier, and higher quality in comparison to similar products, they benefit local farmers, communities, and the environment (Loureiro & McCluskey, 2000; Knight, 2013; Albayram *et al.*, 2014; Gracia, 2014; Jefferson-Moore *et al.*, 2014; McFadden, 2015). Due to higher quality perception, consumers are generally willing to pay more for local products (Deselnicu *et al.*, 2013; Lefèvre, 2014; Bishop & Barber, 2015). Price premium expectation mostly lead false or deceptive use of the name of local foods in the market and these products are often faced with an unfair competition. Thus, it is necessary to protect these foods against for unfair competition by using geographical indications (GI). The World Trade Organisation defines a geographical indication (GI) as "a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin" (WTO, 2018). For the Food and Agriculture Organization of the United Nations (FAO), GI represent a tool towards sustainable food system and local sustainable development (Vandecandelaere *et al.*, 2010), being a driver for comprehensive development projects and approaches (Vandecandelaere, 2016).

Several countries already have a sui generis protection system of traditional products and knowledge. As for the geographical indication concept, most of the definitions are similar to the definition of EU Regulation (EC) No 1151/2012. Protected Designation of Origin (PDO) is a name which identifies a product: originating in a specific place, region or, in exceptional cases, a country; whose quality or characteristics are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors; and the production steps of which all take place in the defined geographical area.

Protected Geographical Indication (PGI) is a name which identifies a product: originating in a specific place, region or country whose given quality, reputation or other characteristic is essentially attributable to its geographical origin; and at least one of the production steps of which take place in the defined geographical area (EU, 2012).

GI labels are designed to guarantee consumers that food has a specific origin and follows a production process based on established codes of practice. GI labels aim to reduce imperfect information between sellers and buyers about product attributes. Codes of practice establishing the production and product requirements of GI products act as mechanisms to make the certification credible and trustworthy (Dentoni *et al.*, 2013).

Due to increased interest, various organisations are creating projects around local products, most commonly dealing with geographical indications (GI). In this frame, using GI as driver for local stakeholders, and in particular producers, to engage in collective processes to preserve and promote their local resources and production system, it is crucial to select well the GI potential products to serve as learning processes and provide demonstrative effects. Indeed, there is typically more than one local product from a province or region, or from one category, and it is important to assess well their capacities to provide with best practices and good results for other stakeholders to follow the path, especially in the case of projects with limited sources. Consequently, a question arises regarding which products are selected among all local products. Alternative products have different advantages and disadvantages during registration and implementation phases of GI. Some products must pass more criteria to display a GI and benefit from it. Therefore, product selection, as a topic of GI in some regions, has become an issue to emphasize. Beside of assess the best pilot among a variety of local products, developing an impartial selection method is also important in order

Table 1 - Basic assessment levels for geographical indication practices and product selection.

Economic Level	Social/cultural Level	Environmental Level
Stabilization of markets and/or increase in market share	Local employment	Product characteristics, native races and varieties, specific to a region, being dominant (i.e., distinct properties)
price increase	Producers' power, competence and structure of producers (e.g., traditionalism, being innovative, etc.)	Extensive cultivation
Creation of added value for the region	Cultural values and traditions	Impact on natural resources
Attraction of markets in relation to local products and properties of the supply chain	Preservation of social and cultural resources	Less pesticide use due to native varieties.
Product's recognition/reputation throughout the country or world	Willingness, capacities or previous experience in collective action Organizations that bring producers together and ensure collaboration	Endangered species and landscape
	Umbrella organization that supports and coordinates studies regarding local products	

Source: Barjolle et al., 2009; Bramley and Biénabe, 2013; FAO, 2012.

to prevent disputes among local authorities and product related organisations (municipalities, producer cooperatives and unions, etc.). Because they generally demand to be allocated the project funds for the local products that growing in their territory.

Research into selection of origin-linked products to be used as pilot is limited. However, the FAO methodologies for identifying GI potentialities and develop inventory of GI products (FAO, 2012), provides with a stepwise approach to select best pilot products in the frame or a project aiming at GI development, through the qualitative assessment of strengths and weaknesses of each product system, in terms of producers capacity for mobilization, economic potential, link with natural, cultural and social assets, and depending the project main objective (local development, economic growth, preservation of social, cultural or natural resources, etc.). Two studies from Barjolle et al. (2009) and Bramley & Biénabe (2013) use objective and subjective

data to assess which local products have high potential for success. Barjolle et al. use tools such as benchmarking and Likert scales for subjective criteria, drawing analogies by reviewing successful examples and digitizing meetings with producers of local products and relevant institutions by using various scales. They define three levels of successful GI practices and product selection, and assess the basis for criteria found important at each level. Table 1 shows a mix of criteria from the three studies. Dokuzlu et al. (2017) use analytic hierarchy process and scales to select local products for GI projects.

Each factor in Table 1 should be take into consideration at product selection and GI implementation phase of the products.

Building on these methodologies, and in relation with project with limited timeframe and resources, a sound methodology combining quantitative and qualitative data for a rather quick assessment has been perceived as necessary to develop and use for the selection of best

pilot. This paper presents such a methodology using and comparing analytic hierarchy process and scales to select local products for GI pilot project. It identifies origin-linked products with potential being pilot of a GI project, the purpose of which is to explain methodologies used during pilot product selection in the frame of the FAO/EBRD project, used as a case study. The Food and Agriculture Organisation of the United Nations (FAO) and The European Bank for Reconstruction and Development (EBRD) began the project jointly in 2015. The main objective of the project was to support development of sustainable value chains through the development of origin labels in Bursa/Turkey, and strengthening the GI system in the country by providing methodologies, especially in the preparation of specification and certification and control with the leading role of producers. The project was implemented in close collaboration with Uludag University, Ecocert (France) and public authorities in Bursa and at national level such as Turkish Patent and Trademark Office and Ministry of Agriculture and Forest of Turkey.

2. Methods Used During Products Selection

Bursa already has products that are registered as GIs, including Gemlik Olives, Inegöl Meatballs, Karacabey Onions, Bursa Knives, Bursa Silk, and Gemlik Horse. A list of Bursa's local products, except those already registered, were initially identified by the project, with a brief description of each product's features. Preselection was then performed as an initial stage. It was necessary to use a combination of qualitative (subjective) and quantitative (objective) data during product selection because data on local products were insufficient, and standard data could not be obtained for each product. Qualitative data were obtained from face-to-face meetings held with officials of institutions and organizations related to local products. They were collected based on the officials' judgments regarding the reputation of a product and region-specific characteristics that are important in terms of GI and legal regulations. Quantitative data were obtained from official records and statistics, including production, exportation and value.

Assessments made using subjective and objective data were insufficient for selection of local products. The structures of markets, competitive properties, consumer expectations, estimation of a product's progress based on its status, and market saturation should be considered. Although numerical values offer insights into product selection, they should be evaluated in conjunction with other factors. A few data exist on local products, and consequently, some evaluations related to local products were performed qualitatively. In those cases, it was necessary to translate qualitative data into quantitative data during product selection and classification. Transforming data is a common scientific method in social research when data are insufficient (Abeyasekera, 2005; Dey, 2005; Driscoll *et al.*, 2007; Srnka & Koeszegi, 2007). A combination of methods was used within this scope. Application of each method is explained briefly.

2.1. Simple Scoring

During scoring, Likert-type, hedonic, and Stapel scales are most common (Crimp, 1990; Green *et al.*, 1988). Since Likert-type and hedonic scales are generally used to indicate judgments (e.g., I agree, I do not agree, etc.), a Stapel scale, which is more suitable to determining ratings, was used in this study. A Stapel scale is a continuous, multi-item scale with which a respondent indicates the most suitable assessment between two extreme values based on his/her knowledge, experience, and judgment. An assessment is made for more than one criterion on the same subject, and scales can involve even- or odd-numbered categories. For odd-numbered categories, a midpoint indicates indecision or neutrality, but with even-numbered categories, respondents are forced to pick a side (Büyükyıl-maz, 2015; Green *et al.*, 1988). A Stapel scale was preferred during the project since respondents were requested to indicate a magnitude rather than judgment. Even-numbered categories were selected to determine respondents' indecision regarding each local product. Seven criteria that are important to management of GIs were used when evaluating local products on various aspects, and weights were scaled between zero

and 4 by reporting a maximum of 4 points for the most important criterion:

- characteristics due to the region (i.e., specificity);
- reputation of the product;
- power of the organization;
- marketing potential;
- sustainability;
- export potential, if it is the case;
- income-generation potential.

Characteristics due to the region (specificity): GIs and origin labelled products can be produced only within a given geographical area. That particular area contributes something to the end product that is unique and makes a recognizable difference (Bramley & Biénabe, 2013). In cases in which a product cannot be produced outside its territory or region without losing its characteristics, or when at least one production step must be realised in the region to retain its characteristics, the region contributes its features. If the product has the same quality when produced outside its territory, its characteristics are not specific to the region, and it is not subject to GI. To accomplish this, it is indispensable to take into account not only the biological characteristics, but also the local knowledge and practices involved. These elements are an integral part of the specificity of the products (Berard & Marchenay, 2006).

Reputation of the product: A GI's full market value comes from its broader reputation in extended markets (Alaire *et al.*, 2011). That local products are known in a territory does not alone carry much meaning. During commercialization, it is important that consumers living outside of the city/region know the products; a product's reputation extends beyond its region. It should be perceived as a high-quality product, positioned differently in comparison to similar products, and known by a range of consumers. To be effective signals of both food credence and experience attributes, GI labels need to build reputation based on past customer experience. Most famous GIs (such as Parma Ham, Roquefort cheese or Champagne) naturally enjoy reputation based on their past history and international recognition (Dentoni *et al.*, 2013).

Power of the institution/organization: The collective mobilisation of actors is necessary to define and implement the GI (Reviron & Chappuis, 2011). For each product, the existence of an organization that protects the quality and producers of the product, and conducts marketing studies and leads all studies in relation to the product, is important to placing the product in markets and ensuring its sustainability. However, the existence of an institution or organization in relation to a local product is not a sole criterion; it is also important that the organization is powerful and works effectively. Herein, a powerful institution/organization means an organization with a strong capital and management structure that possesses or can access financial funds to conduct various activities and that employs a professional staff.

Marketing potential: Although local products are not generally produced in high volumes, it is important to produce a marketable amount. A product should be consumed out of its region, with a marketing mix, such as promotion, price, and distribution, used.

Sustainability: Sustainability includes not only the sustainability of production, but also of production techniques and viability under various market conditions. This criterion also covers environmental, economic, and social sustainability.

Export potential: Criteria such as export amount, value, and export opportunities are important to take the value of local products out of the country and increase added value obtained from the product. If an applicant applies for GI at the EU level, the criterion is important, but if not, it can be ignored.

Income-generation potential: This criterion relates to the combination of the number of producers, amount of production, and cost and selling price of the product. A local product should have income-generation potential for its producers and region. If not, its effect on development in the region is weak.

2.2. *Analytic Hierarchy Process (AHP)*

Simple scoring assumes that all criteria have the same weight, though the importance of each criterion is different. Therefore, simple scoring should be weighted, and superior characteristics of each product in comparison to peers should be evaluated separately according to each criterion. A researcher can give weights to these criteria, but the judgment is then subjective. When weights are determined by AHP, the judgment comes from a group of experts, and is thus more objective. For this reason, Analytic Hierarchy Process (AHP) was used to determine the weights of the criteria and make pairwise comparisons of products for each criterion. AHP was applied not only to calculate criteria weights, but also as a product selection method. AHP was first suggested Myers & Alpert (1968), developed by Saaty (1977), and turned into a model. AHP was used throughout the 1980s, and used in many cases as a multi-criterion, deci-sion-making method. AHP has been applied in many fields, including investment decisions in the private sector and selection of government policies (Haas & Meixner 2009; Ömürbek & Tunca 2013; Özden, 2008; Saaty, 2008). It is a measurement theory based on pairwise comparisons of alternatives according to a common criterion. A multilevel hierarchical structure of objectives, criteria, possible sub-criteria, and alternatives is used for each problem (Ömürbek & Tunca 2013). AHP obtains priorities from judgements of pairwise comparisons of decision-related items according to an item at a higher level (Topçu, 2001):

- pairwise comparison judgements are inputs to a matrix;
- priorities are obtained by calculating the highest eigenvector of the matrix;
- inconsistencies of judgements are calculated.

There are $n(n+1)/2$ comparisons during a decision process with n criteria, with decision matrix:

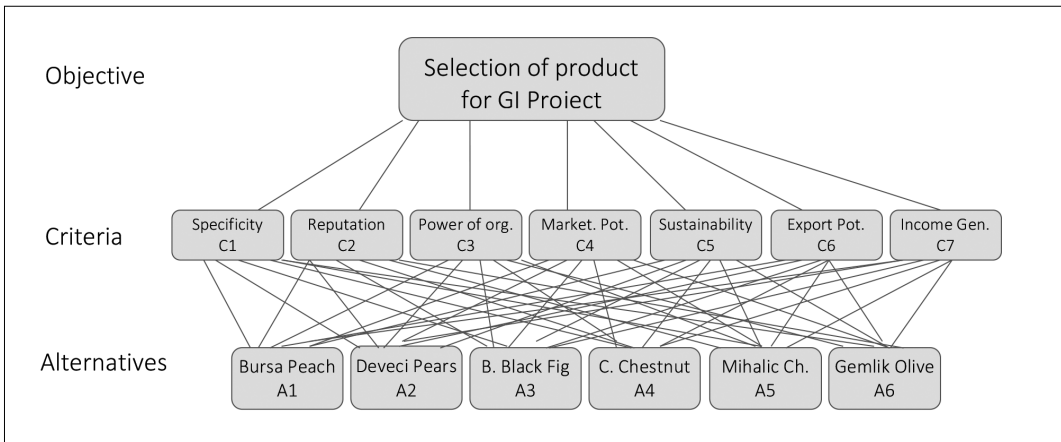Figure 1 - Objective, Criteria and Alternatives for "Selection of Product".

Table 2 - Importance scale used during AHP.

Intensity of Importance					Conceptual Explanation
1	3	5	7	9	Criteria are of **equal** importance/there is no judgement about them
1	3	5	7	9	The first criterion is **slightly** important/favoured in comparison to the other
1	3	5	7	9	The first criterion is **more** important/favoured in comparison to the other
1	3	5	7	9	The first criterion is **much more** important/favoured in comparison to the other
1	3	5	7	9	The first criterion is **extremely** important/favoured in comparison to the other
2	4	6	8		Intermediate values

Table 3 - Decision Matrix.

		j^{th} criterion		
		Criterion 1	Criterion 2	Criterion (n)
i^{th} criterion	Criterion 1			
	Criterion 2			
	Criterion (n)			

When a_{ij} denotes the intensity of importance of the ith and j^{th} criteria, the pairwise comparison matrix is:

$$A = \begin{bmatrix} a_{11} & a_{12} & .. & a_{1n} \\ a_{21} & a_{22} & .. & a_{2n} \\ . & . & .. & . \\ a_{n1} & a_{n2} & .. & a_{nn} \end{bmatrix}$$

Due to the reciprocity rule, the lower side of the matrix's diagonal is denoted $a_{ji}=1/a_{ij}$. After the matrix is complete, values for the A matrix are normalized. More than one method can be used during normalization, but the most common is dividing each element in a column by the sum of the column:

$$b_i = \sum_{i=1}^{n} a_{il} \qquad (1)$$

Elements of the pairwise comparison matrix are divided by the total value of their column, using the formula:

$$c_{ij} = \frac{a_{ij}}{b_i} \qquad (2)$$

This way, a n_{xn}-dimension C matrix consisting of c_{ij} elements is obtained:

$$C = \begin{bmatrix} c_{11} & c_{12} & .. & c_{1n} \\ c_{21} & c_{22} & .. & c_{2n} \\ . & . & .. & . \\ c_{n1} & c_{n2} & .. & c_{nn} \end{bmatrix} \qquad (3)$$

A formula is used to obtain the percentage weights of criteria relative to each other:

$$w_i = \frac{\sum_{j=1}^{n} c_{ij}}{n} \qquad (4)$$

Arithmetic means of row elements that constitute Matrix C are calculated, and the W column vector is created:

$$W = \begin{vmatrix} w= & \dfrac{c_{11}+c_{12}+...+c_{1n}}{n} \\ w= & \dfrac{c_{21}+c_{22}+...+c_{2n}}{n} \\ w= & \dfrac{c_{n1}+c_{n2}+...+c_{nn}}{n} \end{vmatrix} = \begin{bmatrix} w_1 \\ w_2 \\ . \\ w_n \end{bmatrix} \qquad (5)$$

Success of AHP results depends on consistency between pairwise comparisons of decision-makers. Therefore, consistency analysis is performed after calculation of Matrix C, and consequently, consistency vector CR is calculated. To calculate CR, the D column vector should be obtained, followed by eigenvector and the consistency indicator (CI):

$$D = \begin{bmatrix} a_{11} & a_{12} & .. & a_{1n} \\ a_{21} & a_{22} & .. & a_{2n} \\ . & . & .. & . \\ a_{n1} & a_{n2} & .. & a_{nn} \end{bmatrix} \times \begin{bmatrix} w_1 \\ w_2 \\ . \\ w_n \end{bmatrix} = \begin{bmatrix} d_1 \\ d_2 \\ . \\ d_n \end{bmatrix} \qquad (6)$$

Eigenvector (e) related to each assessment criteria is calculated by dividing the corresponding elements of D and W column vector:

$$e_i = \frac{d_i}{w_i} \quad (i = 1, 2, \ldots, n) \qquad (7)$$

A base value (λ) is calculated by the arithmetic mean of eigenvector values:

$$\lambda = \frac{\sum_{i=1}^{n} e_i}{n} \qquad (8)$$

$$CI = \frac{\lambda - n}{n - 1} \qquad (9)$$

After the CI value is calculated, the value is divided by the random index (RI) value (Table 4):

$$CR = \frac{CI}{RI} \qquad (10)$$

During AHP, the weights of criteria are determined initially. A criteria importance matrix was prepared using the 7 criteria discussed above. Ten experts who worked on regional products and geographical indications at least five years, prioritize the criteria according to the objective of the project were completed an empty criteria importance matrix. A consistency ratio was then calculated for each expert's assessment. Expert assessments with consistency rates greater than 0,10 were eliminated, and the assessments of five experts who satisfied the consistency upper limit of 0,10 were examined. The experts included two academicians

Table 4 - Random Index Values.

n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0	0	0,58	0,90	1,12	1,24	1,32	1,41	1,45	1,49	1,51	1,48	1,56	1,57	1,59

who have especially worked on local products, one expert who worked at TÜBİTAK (The Scientific and Technological Research Council of Turkey), one expert from the Bursa Governor's Office, and one expert from BTSO (Bursa Chamber of Commerce and Industry). The geometric mean of criteria importance assessments of the five experts was calculated, and final criteria weights (based on 1) were determined.

2.3. *Geographical Indication Assessment Form (GIAF)*

GIAF is a form that assesses the information, awareness, and interests of producers/processors (Appendix). This study addresses basic questions of GI applications from producers/processors, and GIAF assesses the tendencies of producers/processors according to quality management and collective commitment.

Table 5 - General data and information of regional Bursa products.

Local Products	Quantitative Data (2015)			1= yes, 0=no		General Information and Assessment
	Production (tons)	Export (tons)	Export Value (000 USD)	Local Variety	Existence of Organizations	Other factors (positive or negative)
Bursa Peaches	86 428	687	797	1	1**	Low resistance of the variety Producers' organisation well-structured
Bursa Deveci Pears	173 550	1 612	1 028	0	1	Too many chemicals used MRL problem for export Variety name problem
Bursa Black Figs	22 541	7 708	20 396	1	1	Producers' organisation is well-structured
Candied Chestnuts	*	*	*		0	No region-specific characteristics
Mihaliç Cheeses	*	*	*		0	No region-specific characteristics Synonym of the Manyas Kelle cheese
Hasanağa Artichokes	2 449	*	*	1	1**	Reputation limited to the region Low production
Ürünlü Pepper	1 910	*	*	1	1**	Reputation limited to the region
Bursa Wild Strawberries	*	*	*	1	0	Reputation limited to the region Low production
Trilye Olives	16 415	*	*	1	1	Synonym of the registered Gemlik Olives, application denied before by Turkish Patent and Trademark Office
Yenisehir Peppers	45 152	*	*	1	1**	Reputation limited to the region
Müşküle Grapes	7 000	*	*	1	1**	Reputation limited to the region Low production
Ovaazatlı Peppers	*	*	*	1	1**	Reputation limited to the region

*Source: Turkish Statistical Institute, 2015 (production data); Uludag Exporters' Association, 2015 (export data). *Data not found; **Organization not related directly to the product, generally structured as an agricultural development cooperative, and works in relation to several products.*

3. Results and Discussion

The first step to product selection is preparing an inventory of potential pilot GIs in a region and then conducting preselection. Potential GIs in the Bursa province and a general assessment table appears in Table 5. This table provides a pre-selection of pilot GIs and gives an opportunity to assess export and production potential of the products. Project team can also have a chance to see if the product is a local variety or not or have an organisation.

Products whose reputations are limited to the region, and products that have very low production, including Hasanağa Artichokes, Ürünlü Peppers, Bursa Wild Strawberries, Yenisehir Peppers, Müşküle Grapes, and Ovaazatlı Peppers, were removed from the assessment. These products are generally known in the city, and do not have a wide reputation in the country. Their production is also not high enough to commer-

cialize. Among local products, Trilye Olive is synonymous with Gemlik Olives, which registered with GI in 2003 (Gönenç, 2006), and thus was ignored. Products listed in Table 5 were analysed in more detail after pre-selection. Gemlik Olive is one of the most famous table olives in Turkey, and was the first registered GI product in Bursa. It has high market share and added value, and consequently was included during assessment as a control group. Six local products considered for product selection were scored by various experts throughout the province according to the criteria discussed above. Averages were calculated after scoring, shown according to various criteria in Table 6.

During selection, Gemlik Olive, which is already registered, obtained the highest score. Bursa Black Figs and Bursa Peaches were next in line after Gemlik Olive. Using AHP, a comparison matrix was calculated from geometric averages of 5 experts, shown in Table 7.

Table 6 - Average scores for products according to simple scoring.

Local Products	Characteristics due to the region	Reputation of the product	Power of the Organization	Marketing Potential	Sustainability	Export Potential	Income-Generation Potential	General Average
Bursa Peaches	3,333	3,667	1,667	3,667	2,667	3,667	2,667	3,048
Deveci Pears	2,750	3,500	2,500	3,750	2,750	2,500	2,750	2,929
Bursa Black Figs	3,750	4,000	1,750	4,000	3,250	4,000	3,500	3,464
Candied Chestnuts	0,667	4,000	0,000	3,667	3,333	3,833	3,167	2,667
Mihalic Cheeses	2,000	2,500	0,000	2,750	2,250	1,000	2,500	1,857
Gemlik Olives	4,000	4,000	3,667	3,667	4,000	1,667	3,667	3,524

Table 7 - Comparison matrix (geometric means of 5 experts).

	C1	C2	C3	C4	C5	C6	C7
C1	1,000	1,392	1,504	2,826	1,638	1,263	2,455
C2	0,718	1,000	3,036	3,441	1,936	2,342	3,985
C3	0,665	0,329	1,000	4,184	3,893	3,171	3,747
C4	0,354	0,291	0,239	1,000	2,203	1,231	2,651
C5	0,611	0,517	0,257	0,454	1,000	1,863	2,461
C6	0,792	0,427	0,315	0,812	0,537	1,000	3,443
C7	0,407	0,251	0,267	0,377	0,406	0,290	1,000

Table 8 - Calculation of W column vector.

	C1	C2	C3	C4	C5	C6	C7	W	D	e	
C1	0,220	0,331	0,227	0,216	0,141	0,113	0,124	**0,196**	**1,544**	**7,872**	
C2	0,158	0,238	0,459	0,263	0,167	0,210	0,202	**0,242**	**1,993**	**8,228**	
C3	0,146	0,078	0,151	0,320	0,335	0,284	0,190	**0,215**	**1,725**	**8,029**	
C4	0,078	0,069	0,036	0,076	0,190	0,110	0,134	**0,099**	**0,760**	**7,674**	
C5	0,134	0,123	0,039	0,035	0,086	0,167	0,125	**0,101**	**0,747**	**7,387**	
C6	0,174	0,101	0,048	0,062	0,046	0,090	0,174	**0,099**	**0,723**	**7,276**	
C7	0,090	0,060	0,040	0,029	0,035	0,026	0,051	**0,047**	**0,353**	**7,477**	
									7,706	λ	
									0,118	CI	
									0,089	CR	

In terms of each criteria, pairwise comparisons were conducted according to alternatives. Calculation of specificity is described as an example, and all criteria were calculated respectively.

Table 9 - Comparison matrix for alternatives - Specificity.

Specificity	A1	A2	A3	A4	A5	A6
A1	1,000	1,000	0,333	9,000	7,000	0,143
A2	1,000	1,000	0,333	9,000	7,000	0,143
A3	3,000	3,000	1,000	9,000	9,000	0,333
A4	0,111	0,111	0,111	1,000	1,000	0,111
A5	0,143	0,143	0,111	1,000	1,000	0,111
A6	7,000	7,000	3,000	9,000	9,000	1,000

The most important criteria were found as reputation of the product and power of the organization. Criteria weights determined by the AHP method were applied, and weighted scores were calculated (Table 12).

Another assessment was conducted to measure the knowledge of producers and actors in the industry and identify links between product and origin, collective commitment, and the strengths and weaknesses of economic values and/or preservation of heritage. The GI assessment form appears in the Appendix. The form was completed exclusively for each product by meeting with producers, companies, academicians, and cooperative officials who work in relation to production of the product. Meetings were held with 12 people, with results calculated by summing scores (Table 13).

Table 10 - Calculation of W column vector for specificity.

Specificity	A1	A2	A3	A4	A5	A6	W Column Vector	D Column Vector	e	
A1	0,082	0,082	0,068	0,237	0,206	0,078	**0,125**	**0,818**	**6,531**	
A2	0,082	0,082	0,068	0,237	0,206	0,078	**0,125**	**0,818**	**6,531**	
A3	0,245	0,245	0,205	0,237	0,265	0,181	**0,229**	**1,615**	**7,040**	
A4	0,009	0,009	0,023	0,026	0,029	0,060	**0,026**	**0,158**	**6,055**	
A5	0,012	0,012	0,023	0,026	0,029	0,060	**0,027**	**0,166**	**6,156**	
A6	0,571	0,571	0,614	0,237	0,265	0,543	**0,467**	**3,388**	**7,257**	
								6,595	λ	
								0,119	CI	
								0,096	CR	

Table 11 - Assessment of alternatives with criteria weights.

		Alternatives						Criterion Weights
		A1	A2	A3	A4	A5	A6	
Criterion	C1	0,125	0,125	0,229	0,026	0,027	0,467	0,196
	C2	0,215	0,062	0,230	0,236	0,032	0,226	0,242
	C3	0,157	0,175	0,146	0,026	0,026	0,470	0,215
	C4	0,058	0,109	0,287	0,261	0,038	0,246	0,099
	C5	0,052	0,054	0,110	0,282	0,226	0,276	0,101
	C6	0,121	0,048	0,411	0,338	0,026	0,057	0,099
	C7	0,031	0,054	0,188	0,416	0,126	0,184	0,047
	Total	**0,135**	**0,101**	**0,221**	**0,175**	**0,054**	**0,314**	**1,000**

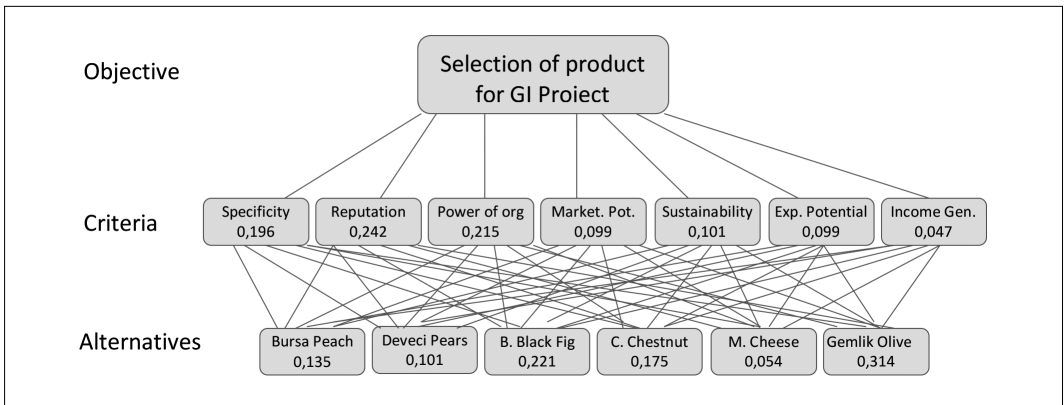Figure 2 - Weighted Criteria and Alternatives.

Table 12 - Weighted points for simple score method.

Weighted Points	Specificity (0.196)	Reputation (0.242)	Power of Organisation (0.215)	Marketing Potential (0.099)	Sustainability (0.101)	Export Potential (0.099)	Inc-Gen Potential (0.047)	Total Point
Bursa Peaches	0,654	0,888	0,358	0,363	0,270	0,364	0,126	3,023
Deveci Pears	0,539	0,848	0,537	0,372	0,278	0,248	0,130	2,952
Black Figs	0,735	0,969	0,376	0,396	0,329	0,397	0,165	3,368
C. Chestnuts	0,131	0,969	0,000	0,363	0,337	0,381	0,149	2,330
Mihalic Cheeses	0,392	0,606	0,000	0,273	0,228	0,099	0,118	1,715
Gemlik Olives	0,784	0,969	0,788	0,363	0,405	0,166	0,173	3,648

Gemlik Olive again had the highest score, followed by Bursa Black Figs and Bursa Peaches. During the meetings, some companies reported weak approaches to GI, and low willingness to manage their own product for GI implementation, especially candied chestnuts. Some companies did not appear to intend to be part of a group that has a relevant GI, and a direct link between a geographical area and a product could not be established for Mihalic Cheeses and Candied Chestnuts. Producers of Candied Chestnuts and Mihalic Cheeses indicated that the products

Table 13 - Scores according to geographical indication assessment form.

Product	Total Score
Gemlik Olives	108
Black Figs	94
Bursa Peaches	83
Mihalic Cheeses	77
Deveci Pears	76
Candied Chestnuts	70

became famous in their regions and that production techniques were shaped by them, but the same product could be produced with the same quality in other parts of the country. Results of assessments made using three methods are shown in Table 14.

The first ranked product other than Gemlik Olives was Bursa Black Figs, and the second was Bursa Peaches for all methods except AHP. Candied Chestnuts, which had the second rank using AHP, was eliminated because according to GI assessment, producers did not intend to participate in GI. Thus, Bursa Peaches was selected as the second product. In some cases, more than one method was required to select products for the project since each method offers advantages and disadvantages. Simple scoring does not consider the weights of criteria, and AHP does not reflect absent criteria. For example, if there is no organisation for a regional product, AHP cannot reflect the situation. AHP can only judge the importance of an existing producer organisation. It is possible to give a zero score to an organisation under simple scoring, thus reflecting the absent criterion, and the same is true for the possibility for exportation. AHP can judge the importance

of exportation possibility, but simple scoring can demonstrate the weakness or absence of it. AHP offers the strength of determining criteria weights, but simple scoring can determine the power of criteria. The third method is complementary. The GI assessment form was administered to producers of a regional product, and the form determines the willingness of the group to implement the project. Each project has its own characteristics, and consequently, it was necessary to know the strengths and weaknesses of methods used when choosing a pilot among a group of products, and using more than one method when necessary.

There are several advantages to use a combination of qualitative and quantitative methods to select pilot GIs. First of all, selection criteria are reflecting the success conditions of a GI, thus, when a GI pilot is selected in the light of these criteria, success chance of the GI implementation can increased. Secondly, methodological approach may prevent some interventions of local governance and reduce their pressure on GI pilot selection and it leads to use resources efficiently by the selection of high chance of success pilot GIs. Furthermore, it should be noted that the economic benefits of geographical indications are not assured, as they depend on several key parameters such as governance, interaction with other local resources, reputation and commercial efficiency (Hadjou *et al.*, 2013).

In light of the project results, two years after, Bursa Black fig and Bursa peach registered in Turkey, and in process for EU registration, with strong involvement of producers' organization. In charge of the two GIs, directly engaged in the selling and promotion of their product on the markets, with high interested demonstrated

Table 14 - Assessment results.

Simple Point (weighted)		AHP		GI Assessment Form	
Gemlik Olives	3,648	Gemlik Olive	0,314	Gemlik Olives	108
Black Figs	3,368	Black Fig	0,221	Black Figs	94
Bursa Peaches	3,023	Candied Chestnut	0,175	Bursa Peaches	83
Deveci Pears	2,952	Bursa Peach	0,135	Mihalic Cheeses	77
Candied Chestnuts	2,330	Deveci Pears	0,101	Deveci Pears	76
Mihalic Cheeses	1,715	Mihalic Cheese	0,054	Candied Chestnuts	70

by consumers during the marketing test organized by the project, and interest from other GI product organization to lean from the process, the methodology for these pilots selection has demonstrated its performance to identify the successful pilots and demonstrative effects.

Selected two GI pilots' implementations had some different results under the same management. Some results for Bursa black fig of GI implementation were; enter to new markets, increase of price received by farmers, increase in sale volume, new export possibilities. Bursa peach were not gain higher sale price however, it enlarged its market share and it was easier to enter new markets. Producer commitment and cooperative management were strengthen.

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Appendix

Geographical Indication Assessment Form

		Weak				Strong
REPUTATION		*0*	*1*	*2*	*3*	*4*
LOCAL	Do we have relevant information to claim that the product has some reputation at local level?					
REGIONAL	Do we have relevant information to claim that the product has some reputation at local level?					
NATIONAL	Do we have relevant information to claim that the product has some reputation at national level?					
INTERNATIONAL	Do we have relevant information to claim that the product has some reputation at international level?					
SPECIFICITY		0	1	2	3	4
DESCRIPTION OF THE PRODUCT	Can the involved people in the product/process can describe the product properly?					
PRACTICES	Can we have a clear description of the agricultural practices/ food process? Do some practices seem to be adequate and adapted to the product? Are they (people involved in the commodity chain) able to describe the technological characteristics of the production system?					
PRACTICE IMPACT	Do the local practices enhance sustainability of the production?					
AREA OF PRODUCTION		0	1	2	3	4
DEFINED AREA	Can the people involved in the production process describe an area of production?					
QUALITY MANAGEMENT		0	1	2	3	4
QUALITY ASSESSMENT	Are the people involved in the commodity chain aware of the quality criteria?					
EXPERIENCE	Do the people involved in the commodity chain already implement a quality management?					
COLLECTIVE COMMITMENT		0	1	2	3	4
ASSOCIATIVITY	Are the people involved already members of a cooperative (or other collective organization)?					
CONTROL	In case of incompliance with the group rules, do involved people risk a sanction?					
PROJECT	Do the involved people met during this inquiry show a great interest in GI project?					
TOTAL SCORE						