Effect of PDO on Rural Heritage. Integrating Origin Labelling to Promote Sustainable Rural Development in Europe

Stella Agostini*
DeFENS-Department of Food, Environmental and Nutritional Sciences, University of Milan, Milan, Italy

*Corresponding author: Stella Agostini, DeFENS-Department of Food, Environmental and Nutritional Sciences, University of Milan, Via Celoria, 2 - 20133 Milan, Italy; Tel: +39 0250316762; E-mail: stella.agostini@unimi.it

Citation: Agostini S (2016) Effect of PDO on Rural Heritage. Integrating Origin Labelling to Promote Sustainable Rural Development in Europe. Food Nutr J 1: 103. DOI: 10.29011/2575-7091.100003

Received: 15 April, 2016; Accepted: 04 May, 2016; Published: 18 May, 2016

Abstract
The aim of quality schemes is to support the agri-food system. The information conveyed by the labels has evolved over time. The origin designation checks the production chain: feed, raw material and processing. None of these schemes contained explicit measures relating ‘quality’ to the positive environmental externalities of the production on the site of origin. Focusing quality labeling strategy just on the food, can fail to describe the local cultural identity. It can cause underlying contradictions of the policy itself, especially to the fragile territories and small producers. In order to understand in which measure the designation could affect the rural heritage, this paper focuses on a case study of a mountain Italian PDO cheese. Here the historic producers did not accept to apply the standard guiding principles initially established by the PDO.

The effect of PDO on territory was examined through land surveys, interviews and rural heritage analysis. After illustrating the quality certification system, the work continues by describing the tradition of producing Bitto cheese. Having established the context, it then identifies and analyses key factors which link cheese making to rural heritage. The investigations carried out underline that the rural heritage is a comprehensive and visible system of traceability of agri-food system. When it is living and linked to its community, it becomes a driving force of sustainable rural and territorial development.

The conclusions emphasize that integrating rural heritage in food labelling designation can open up new prospects and opportunities and thus pass on the ability to make (and shape) quality to future generations. The enlargement of the European Union is a challenge for the contemporary legal framework. This attention should be enforced in the Community’s fragile rural regions where production costs are high.

Keywords
Agri-food system; Cultural identity; Farm buildings; Geographic origin and identification labels; Landscape; Mountain; Rural heritage; Sustainable rural development; Territory

Abbreviations
ANCs: Areas with Natural or other specific Constraints
CAP: Common Agricultural Policy
EC: European Commission
PDO: Protected Designation of Origin
PGI: Protected Geographical Indication
Introduction

Quality food labelling and rural development

The primary roles of food labels are to protect consumers' interests and to help sell the products. A 'quality food label' is a panel on which information about food characteristics (nature, identity, properties, composition, quantity, storage life, origin, method of production or manufacture) is displayed (Regulation (EC) No. 178/2002) [1,2].

Certification is a written guarantee by an independent certification body that a process or a product meets the criteria or requirements contained in a certain standard. To obtain the label, the product is to be analyzed and monitored (Regulation (EC) No. 882/2004) to determine its relationship with the environment and with tradition and whether it is done in accordance with production specifications. Whether a food label is mandatory or voluntary, these standard guiding principles must be followed.

The information conveyed by the labels has evolved over time. Both producers and consumers can refer today to a long list of indicators to assess quality. The relationship of food to identity formation embraces different areas, combining biological, cultural and social aspects of the production [3,4]. Producers can choose from among many different types of certification [5]. A new inventory compiled in 2010 included 441 schemes for agricultural products and foodstuffs marketed in the EU [6]. The quality schemes are intended to support agricultural and processing activities and the farming systems associated with high quality products, thereby contributing to the achievement of rural development policy objectives. The certification influences farm management, investments and marketing strategies. It may condition the attractiveness of food products and it is an important form of protection as established by the World Trade Organization (WTO).

In this regard, the quality label implementation is an important tool to achieve the sustainable future as set out in the Commission Communication entitled 'Europe 2020', by contributing to local resources preservation and strengthening the organization of local stakeholders [7,8].

Linking quality of food to its place of production

During the 1980s, Community schemes were required in order to protect consumers against unverified claims and to defend business against unfair competition. The Council Regulation (EEC) No. 2082/92 of 14 July 1992 entered into force to encourage the development of traditional agricultural products and foodstuffs. In order to appear in the register, an agricultural product or foodstuff must either be produced using traditional raw materials or be characterized by a traditional composition or a mode of production or processing reflecting a traditional type of production or processing. In order to qualify for a certificate of specific character, an agricultural product or foodstuff must comply with a product specification. The Council Regulation (EC) No. 509/2006 has repealed Council Regulation (EEC) No. 2082/92.

Since the late 1990s, intensive agricultural production has attracted growing attention and consumers have become increasingly sensitive to environmental issues [9]. The need to link the quality of food to its place of production was promoted with the specific designation of Geographical Indication (GI). The rules concerning the area of production conform to the Council Regulation (EC) No. 2081/92 and the Council Regulation (EC) No 510/2006 of 20 March 2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs. They set out provisions on agricultural products and foodstuffs (excluding all wine-sector products, except wine vinegar) from a defined geographical area. To recognize the link of food with their geographical origin, three EU schemes are established:

1) The Protected Designation of Origin (PDO) requires a firm, proven link between product quality and the inherent natural and human factors in its region of origin.

2) The Protected Geographical Indication (PGI) indicates a link with the area in at least one of the stages of production, processing or preparation (such as Parmigiano Reggiano cheese from Italy or Champagne wine from France).

3) The Traditional Specialty Guaranteed (TSG) was introduced by the Council Regulation (EC) No. 509/2006 and Commission Regulation (EC) No. 1216/2007 laying down detailed rules for its implementation. This designation does not concern the origin area, but is linked to its ingredients or to a mode of production. Within the European Union, all the producers who follow the code of practice can use the SGT brand (such as, in Italy, Mozzarella cheese or Pizza by Naples).

The targets of quality schemes for agri-food products were established by the Regulation (EU) No. 1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs. None of these schemes contained explicit measures relating ‘quality’ to the positive environmental externalities of the production on the site of origin.

Quality schemes to sustain ANCs mountain

One of the aim of quality scheme, since the Council Regulation (EEC) No. 2081/92, is promoting the value of products for the development of remote or less-favored regions, with the secondary aim of stabilizing populations and improving farm incomes (rural development policy).

The Regulation (EU) No. 1151/2012 specified that the quality and diversity of the production gives a competitive advantage to the Union's producers and making a major contribution to its living cultural and gastronomic heritage. This is due to the skills and determination of Union farmers.
and producers who have kept traditions alive while taking into account the developments of new production methods and materials [10,11].

The introduction of quality schemes contributes to and complements rural development policy as well as market and income support policies of the Common Agricultural Policy (CAP) [12,13]. In particular, they may contribute more widely in the Community's fragile rural regions where the farming sector accounts for a significant part of the economy and production costs are high. This is the case of areas with natural or other specific constraints (ANCs), that before the 2013 reform of the Common Agricultural Policy, were known as “Less Favored Areas” (LFAs) [14]. The handicap of mountain areas is characterized by a considerable limitation of the possibilities for using the land and an appreciable increase in the cost of working it. It is due to the existence, because of altitude, of very difficult climatic conditions, the effect of which is substantially to shorten the growing season. At a lower altitude, another handicap is due to the presence of slopes too steep for the use of machinery or requiring the use of very expensive special equipment. In order to distinguish the products produced by, or made from, animals in mountain areas, the Commission Delegated Regulation (EU) No. 665/2014 established the application of ‘mountain product’ as reserved term. The terms can define products made from transhumant animals which spend at least a quarter of their lifetime on pastures in mountain areas. Considering that in mountain areas there are insufficient facilities for producing milk and milk products from raw milk, it may be applied to such products when they are processed within 30 km of the mountain area in question.

In 2013, Santini et al., [15] pointed out the issue of the coexistence between the new optional quality term ‘mountain product’ and other existing tools such as trademarks and geographical indications. The existence in mountain areas of traditions and know-how relating to agricultural production and food processing is an opportunity for mountain communities [16]. The production of these foods delivers significant positive externalities, despite producers facing greater constraints than their lowland equivalent. This paper focuses on a case study of a mountain Italian PDO cheese. The aim is to explore the effect of food quality labelling on rural heritage, through broader understandings of influence of local production on its territory [17].

**Material and Methods**

**Over passing the one-way reading**

In recent years a tradeoff between the performance of geographic origin and identification labels on the objectives of rural development took place [18]. A success in the marketplace does not necessarily contribute to higher returns to producers placed upstream in the supply chain of the sector. Vice versa, a stronger market is not always in line with good performance on the market.

This is also true in terms of safeguarding rural sustainable development.

As for the location of production and processing, the origin designation checks the production chain: feed, raw material and processing. Considering only at what the land gives to production represents an "one-way reading". This limited vision can fail to describe the local specificity and can cause underlying contradictions of the policy itself, and especially to the fragile territories and small producers.

The PDO/PGI certifications including products originating in ANCs mountain areas can emphasize this situation [19]. Here the food processing is a ‘provider of identity’, representing socio-cultural values that are the driving force of local development [20,21].

In response to the issues described above, the research introduces the case study of Bitto, and historic Italian mountain cheese.

In order to assess how historical cheese making and PDO code of practice can condition the quality of the territory, the analysis focuses on trying "a two-way reading", looking for the added value of the mountain product. To provide information on the role of the EU PDO designation in preserving, or compromising mountain development, the research carried out on the territory, looked at the on rural heritage generated by the production of Bitto, before and after the PDO designation [22]. To define the relationships that Bitto cheese making has established with its territory over time, the study incorporated competencies on landscaping, architecture, rural planning, agronomy, sociology and anthropology [23]. This was carried out in three steps. The first step of the analysis consisted of defining a selected sample from stakeholders in the historic production area.

In order to understand the impact of Bitto cheese production on the land and community, the 20 interviewees embraced different groups linked to the topic. The target groups comprised cheese making and producers of agricultural products; owners and managers of large and small farms and food processing; stakeholders linked to the Bitto system (shepherds, chefs, officers, local historic experts, slow food members, tourism stakeholders). Interviewing was structured following a qualitative method, face to face, with open-ended questions. It sought to describe the meanings of Bitto production in the perception of the subjects. Collecting local memories and experiences by people who are actually using the cheese making methods of yesterday to do the work of today, gave the rural heritage elements a "voice" enabling to explain their origins and purpose [24,25].

The following step was to establish a list of indicators in order to read the rural heritage on the land [26,27]. According the "European Rural Heritage Observation Guide - adopted in 2003 by the Council of Europe Conference of Ministers
responsible for Spatial/Regional Planning (CEMAT) and the "Pan-European Charter for the rural heritage [28,29], the Bitto rural heritage marks the particular relationship that a human community has established with a territory over time. In this context, its tangible and intangible elements form a part of a wider whole in which cheese making infuses life and connects the various items involved in local production. The analysis recognized as tangible side elements such as landscapes, buildings or any structure related to cheese making activities; moveable property, including equipment for production; products resulting from an adaptation to local conditions and to livestock systems, cultivation and processing traditions. The intangible assets of rural heritage embraced the techniques and skills that have enabled the tangible elements to be created (knowledge of the pasture, soil, water and vegetation management, cheese making process, etc., [30].

The special association between cheese making tradition, local resources and community defined the way to recognize the Bitto rural heritage. The representativeness of each element of the rural heritage made up a specific common property with potential collective value.

The third step, focused on PDO in order to understand in which measure the Designation could affect the quality of the territory and if the Bitto product specification could reveal any contradictions.

Results and Discussion

The Bitto rural heritage

Bitto cheese descends from an ancient tradition of high mountain cheese making.

The name comes from a creek flowing through a secondary Valtellina valley.

The historical area of production includes: the valleys of the Bitto of Gerola and Albaredo and its neighboring municipalities in the provinces of Bergamo and Como.

The exposure and the harsh topography of these areas, promotes the development of breeding and dairy production based on large herds.

Bitto was already known in the sixteenth century as perfectly seasoned cheese that could withstand transport to distant markets. For three hundred years the cheese making process has remained the same. The raw materials used are pastures and live animal's milk. Every aspect of production is an ingenious solution to environmental constraints. The protocol of traditional cheese making incorporates five key factors: cattle management and the use of pastures, hand milking, milk processing, cheese ripening and aging.

1. Cattle and pastures: To solve limitations due to altitude and to difficult climatic conditions, from June to September the herd is taken to mountain pastures. The route starts from the valley villages and, through an intermediate position (maggengo), it reaches the high altitude summer pastures (up to 2,500 m) in mid-August.

2. Hand milking (by local strains): The Bitto cheese is produced with a percentage (5-20%) of goat milk (Orobica of Valgerola breed) and from milk cows (Ob Original Braunvieh breed). The animals are milked by hand.

3. Milk processing: The milk must be processed while still hot, straight from the cow, in a copper boiler. It is heated on wood. At the end of a long process (three/four hours) the mass of cheese is closed in wooden cheese molds. Then salting begins (not pickled), beating the shapes on both sides. The dairy process is itinerant and follows the herd in its summer ascent to the mountain pastures. The milk is kept cool in small structures (canevel or budüler) within which flows a brook.

4. Ripening: After 5 days of salt treatment, the form is pulled out of the bundle and put out to dry in the dairy building (Casera). Here each form has to be scraped and cleaned and turned every 3 days. The shelves which hold the forms must be made of porous wood. In order to let the cheese breathe, the containers have to be turned upside down once a week.

5. Aging cheese: For the first 70 days, the Bitto remains in the Casera of the producer. Each pasteure gives the cheese the scent of its particular flora. In winter the cheese aging continues in the dairy structures downstream. They are often collective. After one year the Bitto form is set vertically and can be left to mature for up to 12 years.

Analysing the spatial and temporal development of each key factor of production allows a better understanding of the relationships between rural heritage and cheese making. This interaction underlines the emerging character of living rural heritage (Figure 1).
By analyzing the incidence of the Bitto production in the sense of the site, the tangible part of rural heritage turns up in agrarian landscapes, property, products and moveable property.

**Landscape:** The spatial organization concerns the broad view of the landscape. It is conditioned by how the cheese making activities are distributed over the land. The multidimensionality of the Bitto landscape is the result of the semiotic content of the production entities. Its perception encloses a combination of environmental signals with cultural and individual signs [31,32]. Cheese making needs, make this landscape an eco-mosaic composed by many ecosystems hierarchically organized, which are in relationship to each other. Connecting the organization of the pasture to a meta ecosystem, allowed reading this spatial heterogeneity such as a set of ecosystem connected by flows and processes of production [33]. The 5 key factors of cheese making shape the landscape in different scenario us, following the cattle itinerary. The landscape is both structurally and functionally characterized by its altitude, from one point of view vertical and horizontal. Each level of altitude (station) is part of a perceived “spatial configuration”. This shapes a landscape unit (such as biotope) of the pasture ecosystem. Here each biotope is defined by pasture management. Turning livestock onto pastures guarantees the cleanliness of trails and water drainage. Rotational grazing hinders the evolution of plant communities. The grazed meadows or the periodically mowed causes a stable vegetation for the composition of both species, which for the structure, shaping a particular type of climax and landscape [34,35]. In the same way the composition of rural heritage characterises each station of the pasture. The difference in altitude between the stations can be from 100 to 700 m above sea level.

**Reference points:** In order for the cattle to return to the same pasture when the grass has grown, a regular grazing system, called “shifting” is used. For this purpose small walls in local stones mark cattle boundaries (“barech”, figure 2).

![Figure 2: Level of mountaintop pastures. The local stones mark cattle boundaries (“barech”, picture by Nangeroni [36]).](image)

This solution structures the land into sufficiently large tracts to allow the herd to stay in the same pasture for 7-15 days. These boundaries are built with the stones taken from the pastures. The same stones are cumulated and used as milestones (“umètt”) or landmarks (“murache”) and as building material to construct permanent or temporary structures.

The tangible heritage here includes also watered natural points or artificial ponds for cattle at each level and fountains. Terracing is another reference point. This type of landscaping was used as installations to ensure farming but also to protect against natural calamities.

**Communication channels:** We considered here those features that contribute to establishing links within the cheese making phase in the landscape, including roads and paths. The need to reach the different stations (unit of altitude), results in a network of long-distance cattle paths and shelters.

**Property:** The architectural features of buildings linked to cheese making belong to several periods. Most of them are still in the traditional style. Looking at the relationships with the key factors of production allows us to retrace their architectural development.

The settlement system follows the pasture stations and differs in relation to the availability of building materials, functions and accessibility. Following the pastures and the cheese-making process, they have to be read looking at each pasture station, from the mountaintop (“alp”) to the bottom (“valley”), through the middle meadows (“maggengo”), according to the Eco mosaic units. The architectural and cultural significance of each station concern building technologies, materials, composition and distribution of space.

Settlement of mountaintop station (“alp”). This settlement unit includes buildings and pastures. The construction site can be composed by single buildings or grouped together. It is equipped with a dairy, shelters for people and animals; this is also where local milk processing and storage of dairy products take place.

Settlement of middle meadow (“maggengo”). The dairies for the first phases of ripening cheese are simple two-story buildings. The ground floor is designed to store the Bitto. The raised ground floor is used for the storage of fat cheese (“mascherpa”), a Bitto by-product. In order to allow air circulation and thus rapid moisture loss of the product, it is distinguishable by its many windows. Scattered in the Bitto valleys and pastures, temporary buildings (“calecc”) can be found. They are built with a dry low wall made of stone. In order to use it as dairy or shelter, shepherds used to roof it with a waterproof tent, which is held up by wooden poles.

Settlement of the bottom (valley). Here the cheese storage is bigger and can be a collective structure. The other typical structure is the milk house (“canevel”), used to store the milk fresh from the animal, waiting to proceed to cheese making.
Made close to the streams, it is a small building. In order to maintain the local refrigerated, it is characterized by a trickle of water flowing on the floor.

Products include local animal species (cows and goats) and cheeses (Bitto and its by-products, such as “mascherpa”, “matusc”, low-fat cheese, etc.).

Moveable property refers to all the farming equipment, the milking and dairy activity, such as the ‘lira’, a traditional tool, made from wood and rope. It is used to mix the curd during the initial processing of milk. The wooden molds, where the mass of cheese is closed at the end of the milk processing, are another example of moveable property.

**When PDO conflicts with the rural heritage**

The Bitto PDO entered into force thanks to Regulation (EC) No. 1263/1996 of the Commission of 1 July (in Italy, with the Ministerial Decree 19 April 1995). To meet the needs of the dairy industry, the new discipline strayed from traditional cheese making. The local production area was extended to the entire province of Sondrio and the pastures of the neighboring territories of the municipalities of the Brembana Valley, in the province of Bergamo and the neighboring municipalities of Introbio and Premana, in Lecco province.

The Code of Practice exempted manufacturers from the addition of goat’s milk and did not indicate strain specifications for cattle breeds. It allowed animal feeds and enzymes with the purpose of managing the cheese making. The new procedures were backed by the producers that made up the “Consortium Casera and Bitto DOP di Sondrio”. In opposition to the PDO, 20 historical producers of Bitto founded the “Committee for the Protection of Bitto as an historical product in original area” (Bitto Valley), creating the alternative brand “heritage Bitto”. By extending PDO its effects included lowering the price of the cheese produced in the mountain pastures. This strategy made traditional production unsustainable, fostering those who used feed and produced quite a bit of Bitto cheese with just 50 cows.

To support the historic producers, “the Slow Food Presidium of the original Bitto and the Bitto Valley Trading SpA Company” were founded. The Company realized “The Bitto Center”, the collective cheese storage of Gerola Alta, at 1053 meters above sea level. This building is capable of holding thousands of cheese forms. Community called it the “Sanctuary of Bitto”. The center vault is built with natural materials and does not require any control of the microclimate. On its shelves, made of traditional fir boards, more than three thousand forms of historical Bitto are left to age. In a section called the “sancta sanctorum” hundreds of forms of Bitto are preserved (for up to fifteen years of ripening). Most of them have already been bought and left here to ripen. While the “historical Bitto” collects international awards, historical producers are heavily fined for breaching the PDO Code of practice and for abusing the protected designation.

In 2010 the differentiation of the historical production was recognized within the PDO.

At the end of 2014, an agreement by the Consortium for the protection of Valtellina cheese, the Consortium for the Protection of Bitto Town and the Sondrio Chamber of Commerce was signed. In this document the historical Bitto Presidio Slow Food has been identified as driving force for the entire production of Bitto and, more generally, for the provincial dairy sector. Today, in the valleys of “historical Bitto” 14 mountain pastures adhere to slow food.

The differences between two approaches showed in table 1 underlines the efficaciousness of the code of practice of historic production respect that of initial PDO. It shows also the difference between a bottom-up design, personified by the historic producers, and the top-down design, represented by the initial code of practice [37]. The comparison shows the weakness of PDO Designation in giving meaning to the values connected to the local production.

Because of the Code of practice of the Bitto PDO, most local rural heritage features could disappear. Just the engagement of the core group of historic producers ensured that local rural heritage can still survive.

While the aim of PDO would be to promote and preserve local heritage and rural development, the outcome may be quite the opposite: forgetting in the code of practice the local cultural identity linked to cheese making, may lead to standardized production methods that would cut local producers out of the loop altogether.

In fragile territories this approach can have unforeseen effects on rural heritage and spatial development. Penalizing local producers can provoke monotonous landscapes, abandonment of historic and natural methods, reduction of biological diversity, extinction of local animal strains, consumption of soil and hydro geological instability.

Rural heritage reflects the value of the diversity of agri-food system. It is the result of the producers ability to enhance local resources [38]. It can be protected only if it is still a living heritage. We need to consider this value to develop the origin designation in order to promote the sustainable rural development recommended by the European Union.

**Conclusion**

This study provided an approach to recognize the rural heritage linked to cheese making in the mountain. It allowed to assess how this heritage can be injured by PDO. Barjolle and Silvander pointed out that an essential condition for ‘Origin Labelled Products’ to be successful is that they must be well-perceived and even culturally close to consumers [39]. The rural heritage can be considered as the semiotic [40] aspect of cheese making. It represents a comprehensive and visible system of traceability, answering to the Regulation (EU)
The importance of protecting the product name (against the risk of degenerating) depends on the attractiveness of the name itself for widespread use beyond the traditional area of origin. This attractiveness cannot be separated by the attractiveness of rural areas. The preambles to the Council Regulation (EEC) No. 2081/92 specify that whereas the promotion of products having certain characteristics could be of considerable benefit to the rural economy, in particular to less favoured or remote areas, by improving the incomes of farmers and by retaining the rural population in these areas. The case study shows that food can promote agri-food system when origin designation identifies the ability of product to “heritagisate” [41] its territory.

The rural heritage it is the first expression of local identity, as emphasized by The ESDP European Spatial Development (1999), on Perspective Towards Balanced and Sustainable Development of the Territory of the European Union. Promoting the rural heritage is a social service and it is the choice of a lifestyle. With its symbolic meanings, it educates visitors, consolidates knowledge, promotes the future of new generations and the protection of the land, ensuring soil stability and landscape management. We must acknowledge the producers, especially in the mountain area, for what they do in the interest of the whole community for the preservation of the quality of the site linked to food and to pass this ability to future generations. Today in the Bitto Mountain pastures there are 70 people. Many new “historic producers” are under 25 years old. They manage the rural heritage as their own source of development. The case study shows how integrating origin labelling with local cultural identity, can become the driving force for agri-food system, making also remote rural areas attractive and viable for young people.

Acknowledgements

This research was supported in part by Èupolis Lombardia on behalf of The Regional Council of Lombardy Region. I am particularly grateful to F. Caruso, M. Corti, S. Delapiere and S. Contessi. I would like to include a special note of thanks to the Ecomuseum of Gerola Valley and to F. and I. Acquistapace, V. Cattaneo, P. Ciapparelli, L. and S. Curtoni, G. Giovannoni,
References

1. Cheftel JC (2005) Food and nutrition labelling in the European Union. Food Chem 93: 531-550.
2. Bonsmann SS, Celemín LF, Grunert KG, FLABEL consortium (2010) Food labelling to advance better education for life. Eur J Clin Nutr 64: 14-19.
3. Marsden T, Banks J, Bristow G (2002) The social management of rural nature: Understanding agrarian-based rural development. Environ Plan 34: 809-825.
4. Latshaw BA (2009) Food for Thought: Race, Region, Identity, and Foodways in the American South. South Cult 15: 106-128.
5. Durrieu F (2008) Impact of brand identity on labelling: the case of regional branding. 4th International Conference of the Academy of Wine Business Research, Siena, Italy.
6. Arendt Research and Consulting in Economics (2010) Inventory of certification schemes for agricultural products and foodstuffs marketed in the EU Member States: Data Aggregations. Arêté Research and Consulting in Economics, Italy. Pg no: 1-79.
7. Vandecandealaere E (2010) Geographic origin and identification labels: associating food quality with location. In: Albert J (ed.). Innovations in Food Labelling. Woodhead Publishing Limited,UK. Pg no: 137-152.
8. van der Ploeg JD (2014) Peasant-driven agricultural growth and food sovereignty. The Journal of Peasant Studies 41: 999-1030.
9. Rudel TK, Meyfroidt P (2014) Organizing anarchy: The food security-biodiversity-climate crisis and the genesis of rural land use planning in the developing world. Land Use Policy 36: 239-247.
10. Cerutti AK, Bruun S, Donno D, Beccaro GL, Bounous G (2013) Environmental sustainability of traditional foods: The case of ancient apple cultivars in Northern Italy assessed by multifunctional LCA. Journal of Cleaner Production 52: 245-252.
11. Vittese G, Amilien V (2011) From tourist product to ordinary food? Anthropology of food 8.
12. Bartolini F, Bruinck P (2014) Understanding linkages between common agricultural policy and High Nature Value (HNV) farmland provision: an empirical analysis in Tuscany Region. Agric Food Econ 2: 13.
13. Shucksmith M (2010) Disintegrated rural development? Neo-endogenous rural development, planning and place-shaping in diffused power contexts. Sociologia Ruralis 50: 1-14.
14. Robinson R (2009) Mountain Development Based on Cultural and Environmental Assets: European case studies and proposals to guide Carpathian and Balkan projects. Euromontana SARID-M report on positive externalities 2008-2009, Belgium. Pg no: 1-65.
15. Santini F, Guri F, Gomez P (2013) Labelling of agricultural and food products of mountain farming. JRC Scientific and Policy Report, European Commission, Spain. Pg no: 1-159.
16. Beel DE, Wallace CD, Webster G, Nguyen H, Tait E, et al. (2007) Cultural Resilience: the production of rural community heritage, digital archives and the role of volunteers. Journal of Rural Studies Pg no: 1-10.
17. Bosshard A (2000) A methodology and terminology of sustainability assessment and its perspectives for rural planning. Agriculture, Ecosystems and Environment 77: 29-41.
18. Carbone A, Caswell J, Galli F, Sorrentino A (2014) The Performance of Protected Designations of Origin: An Ex Post Multi-Criteria Assessment of the Italian Cheese and Olive Oil Sectors. Journal of Agricultural & Food Industrial Organization 12: 121-140.
19. Blasi E, Cicalaieto C, Pancino B, Franco S (2015) Alternative food chains as a way to embed mountain agriculture in the urban market: the case of Trentino. Agricultural and Food Economics 3: 3.
20. Agostini S (2009) Vernacular rural housing: Heritage in the landscape. Landscape and rural heritage, European spatial planning and landscape, Council of Europe Publishing, Belgium 8: 113-124.
21. Almerico GM (2014) Food and Identity: Food Studies, Cultural, and Personal Identity. Journal of International Business and Cultural Studies 8: 1-7.
22. Corti M (2011) I ribelli del bitto. Quando una tradizione casearia diventa ever-siva. Slow Food, Italy pg no: 189.
23. Grasseni C (2011) Re-inventing food: Alpine cheese in the age of global heritage. Anthropology of food 8.
24. Herzfeld M (2004) The Body Implicotic: Artisans and Artifice in the Global Hierarchy of Value. University of Chicago Press, USA.
25. Brintimblecombe J, van den Boogaard C, Wood B, Liberato SC, Brown J, et al. (2015) Development of the good food planning tool: A food system approach to food security in indigenous Australian remote communities. Health Place 34: 54-62.
26. Dejeant-Pons M (2013) Rural Heritage as a Driving Force for Sustainable Development and Territorial Cohesion. Meopiana EBulletin, Greece.
27. Agostini S (2008) Agriculture, land and people’s identity in Italy. The rural vernacular habitat, a heritage in our landscape. Futurope, Russia 1: 22-24.
28. Cemat (2003) European Rural Heritage Observation Guide. Council of Europe.
29. Cemat (2010) Charter for the rural heritage: promoting sustainable spatial development: Rural heritage as a factor of territorial cohesion. Council of Europe.
30. Deacon H, Smeets R (2013) Authenticity, Value and Community Involvement in Heritage Management under the World Heritage and Intangible Heritage Conventions. Herit Soc 2: 129-143.
31. Farina A, Bogaertb J, Schipani (2005) Cognitive landscape and information: new perspectives to investigate the ecological complexity. Biosystems 79: 235-240.
32. Farina A, Belgrano A (2004) The eco-field: A new paradigm for landscape ecology. Ecol Res 1: 107-110.
33. Massol F, Gravel D, Mouquet N, Cadotte MW, Fukami T, et al. (2011) Linking community and ecosystem dynamics through spatial ecology. Ecol Lett 3: 313-323.
34. Zhang Z, Van Colliée F, De Clercq EM, Ou X, De Wulf R (2013) Mountain vegetation change quantification using surface landscape metrics in Lancang watershed, China. Ecol Indic 31: 49-58.
35. Sylvain ZA, Wall DH (2011) Linking soil biodiversity and vegetation: implications for a changing planet. Am J Bot 5: 517-527.
36. Nangeroni D (1958) La struttura geologica del territorio della Provincia di Sondrio. Amministrazione Provinciale di Sondrio.
37. Vitorello D (2011) When geographical indication conflicts with food heritage protection. Anthropol Food 8.
38. Koohafkan P, Burlingame B, Demini S (2012) Dynamic conservation of globally important agricultural heritage systems: for a sustainable agriculture and rural development. (Sustain diets Biodivers Dir Solut policy. Res action Int Sci Symp Biodivers Sustain diets united against Hunger), FAO, Rome, Italy. Pg no: 56-65.
39. Barjolle D, Sylvander B (2000) PDO and PGI products: market, supply chains and institutions - Protected Designations of Origin and Protected Geographical Indications in Europe: Regulation or Policy? FAIR - CT 95-306, Final Report, European Commission.
40. Farina A (2008) The Landscape as a Semiotic Interface between Organisms and Resources. Biosemiotics 1: 75.

41. Bessière J (2013) ‘Heritagisation’, a challenge for tourism promotion and regional development: an example of food heritage. J Herit Tour 8: 275-291.