LANDSCAPE EATERS: SUPPORTING RURAL DEVELOPMENT AND ECOSYSTEM SERVICES DELIVERY BY EATING

Soy-Massoni E.[1]*, Monllor N.[2], Nuss S.[1], Markuszewska I. [3], Tanskanen M.[4]

[1]Geography Department, University of Girona, Girona, Spain

[2]AmaTerra, Sant Joan de les Abadesses, Spain

[3]Department of Landscape Ecology, Adam Mickiewicz University, Poznan, Poland

[4]Department of Geographical and Historical Studies, University of Eastern Finland, Joensuu, Finland

Abstract

Eating is a creative and holistic way of contributing to rural development, landscape preservation and ecosystem services delivery in rural areas. The experience of contributing to a better world with a daily action is totally revolutionary. The way we buy, cook and consume food, it is one of the more relevant ways of participation in a low-carbon society from the perspective of personal choices. Thinking eating food as an action of direct policy, means changing the landscape with a daily commitment to a healthier society. This article aims to present the "Landscape eaters' experience" carried out in May 2017 in Vilademuls (Girona, Spain). 12 international students experienced during 2 weeks meals being part of a fair food system and eating consciously where lunch and dinner menus were created in order to discover the local farm products in the area and also to participate actively in the local economy system. Results not only show the educational value of the experience, but also the analyses of the environmental and social benefits behind selected products, such as its contribution to new generation of farmers, the creation of alternative economic models, the establishment of population in the territory, producing high nature value farmland, or maintaining traditional landscapes.

Keywords: *agricultural landscapes, ecosystem services, educational and gastronomic experience, rural development*

1. THEORETICAL FRAMEWORK

1.1 Agricultural landscapes and ecosystem services

Agriculture is the most important land use across Europe (45%) (Roundsevell et al. 2003, Lazrak et al. 2010, Busch 2006) and in the world covering nearly 40 per cent of the terrestrial surface of the Earth (FAO 2009). This is why landscapes changes are mainly explained by developments in farming systems and agricultural productions (Deffontaines et al. 1995). This has given rise to unique semi-natural environments with a rich variety of habitats and species dependent on the continuation of farming. According to the European Environment Agency between 25% and 50% of the habitats protected by Natura 2000 network in the south European countries depend on low intensity agriculture practices for their maintenance (EEA 2006).

Due to the long history of human involvement with nature, almost all areas in Europe can be considered landscapes with human intervention (Bieling et al. 2014), i.e. agricultural landscapes. Most agricultural landscapes resulted of a co-produced human-ecological system i.e., rural communities and local ecosystems are strongly interdependent (Blondel 2006, Anderson et al. 2007, Fischer et al. 2012). Besides the production of food, a common character of European agriculture, even in its diversity between and within countries, was the close relationship, almost symbiotic, between farmers and the environment (Simoncini 2009).

Agricultural landscapes are undergoing rapid and fundamental transformations across the world, mainly as a result of an ongoing polarization of land use (Plieninger et al. 2014), with abandonment and rural exodus on the one hand, and intensification on the other (Verburg et al. 2010, Van Vilet et al.

2015). Changes in agricultural practices have led to declines in the farming population and significant changes within the landscape. In Spain, for example, the agricultural sector only occupies 4.5% of the active population, according to data from the Labor Force Survey of the last quarter of 2012 (INE, 2013).

But, paradoxically, many rural areas are recording significant demographic growth (Paquette and Dumon 2003). Rural areas are simultaneously becoming residential places for a growing number of urban-to-rural migrants (Fuguitt 1985). From the 2000s, and although it is not a new trend, an important demographic revitalization of rural territories is perceived, which has helped to reverse the situation of abandonment and crisis in which they were immersed (Guirado, 2011). The arrival of neorural population, although not in quantitative terms, a phenomenon comparable to the previous rural exodus, has helped to recover and to build alternative economic development models, among which the agroecological projects initiated by young farmers who bet and bet on a live rural environment (Abad, 2002, Monllor, 2011). Along with the social recomposition of rural communities, the increase in residential use of the countryside appears a determining factor in landscape change. The extent to which urban and non-farming migrants are settling in rural areas is creating a 'rural renaissance', European agricultural landscapes are valued as everyday living environments, countryside, heritage, scenery with aesthetic (Fleischer and Tsur 2000) and recreational qualities and unique biodiversity (Farina 2000, Plieninger and Bieling 2013).

Agricultural functions beyond production of food, energy and fibres, are increasingly recognized (Holmes 2006, Mather et al. 2006). Services from farming such as provision of wildlife habitats and leisure opportunities have become political issues due to increased awareness of environmental degradation of natural habitats and increased demand for recreation (OECD, 2001, Jongeneel et al. 2008). This development has expanded the perception of output from farming. Contemporary outputs of sustainable agriculture, which balance economy, ecology and social relations, comprise both marketable goods, and ecosystem services for which there are no market mechanisms (Jenerette et al. 2006, Van Huylenbroeck et al. 2007), also termed positive externalities. Thus, the farming sector is challenged in balancing the provision of marketable goods and non-marketable services. Institutional approaches to ensure the provision of the latter has been employed during the last three decades, e.g. in the framework of the EU Common Agricultural and Rural Development Policies (Uthes et al. 2011).

High-diversity agroecosystems connected with a diversity of habitats in complex landscapes may have the capacity to provide resilient ecosystems and a sustainable, multifunctional agriculture (Pimentel et al. 1992, Schulze et al. 2004). Here, high-diversity agroecosystems are referred as High Nature Value Farmland (HNVF). HNVF comprises “those areas in Europe where agriculture is a major (usually the dominant) land use and where that agriculture supports or is associated with either a high species and habitat diversity or the presence of species of European conservation concern or both” (Andersen et al. 2003:4). HNVF accommodates habitats both on cultivated or grazed areas and in features such as hedgerows, ponds, and trees, which were historically integrated into farmlands. HNVF also results in multiple ecosystem services, comprising provisioning, e.g., high-quality food and maintenance of genetic resources; regulating, e.g., soil quality regulation, pollination, and water purification; and cultural, e. g., heritage, recreation, and ecotourism (Oppermann et al. 2012).

Figure 1 show a conceptual framework for comparing land use and trade-offs of ES. The Figure has been adapted from Foley et al. (2005) and its aim is the illustration of three hypothetical landscapes: a natural ecosystem (left), an intensively managed cropland (middle), and a high nature value farmland (right). The natural ecosystems are able to support many ecosystem services at high levels, but not food production. The intensively managed cropland, however, is able to produce food in abundance (at least in the short run), at the cost of diminishing other ecosystem services. However, a HNVF is explicitly managed to maintain other ecosystem services—may be able to support a broader portfolio of ecosystem services.

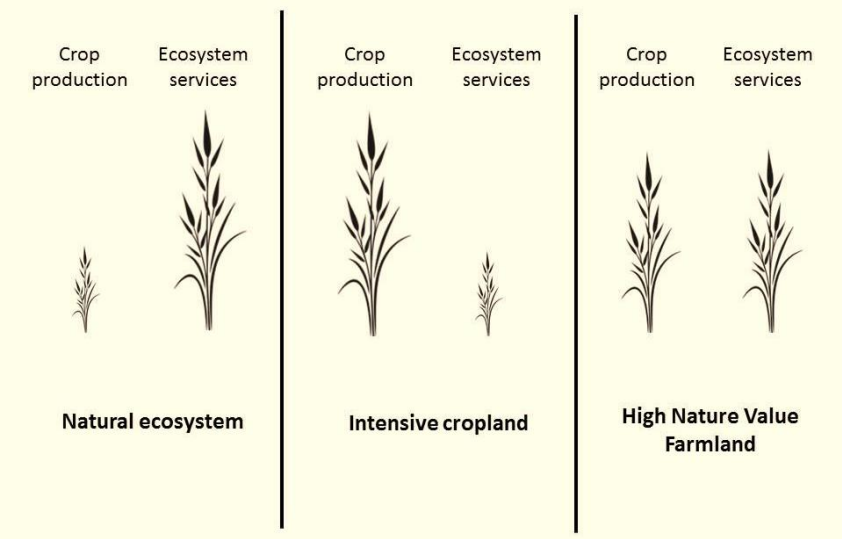

Fig. 1. Conceptual framework for analysing trade-offs among bundles of ecosystem services (source: Soy Massoni, E. 2016 adapted from Foley et al. 2005)

From the resilience perspective, landscapes are capable of coping with disturbances, e.g., demographic or economic changes, without changing their structure or functions, until they cross certain thresholds. European agricultural landscapes are in a late conservation phase as seen through a resilience lens, meaning that they are at the turning point toward breakup (Plieninger and Bieling 2013).

Figure 2 (Soy Massoni 2016) shows a conceptual framework analyzing the trends of an agricultural landscape managed primarily with the aim of improving provisioning services (agricultural production). The figure shows that there is an opposite trend between provisioning services and other services, and a threshold where both trends cross, indicating the point when a landscape becomes a non-resilient landscape. Ecosystem services trade-offs are constantly growing, and the maximum arrives when provisioning services and other services have the highest distance between themselves. HNVF occupies an area in the Figure where trade-offs are low, and all ecosystem services have high or very high values. The case study of Soy-Massoni thesis (2016) – *La Plana de l'Empordà* - represents agricultural landscapes under a trend of intensification of the agricultural practices and its location is in between the HNVF area and the threshold. Trade-offs emerging from the valuations alert about an early-medium stage of vulnerability towards the threshold, which Pleininger and Bieling (2013) described as *the turning point toward breakup*; here considered as the tipping point toward a non-resilient landscape.

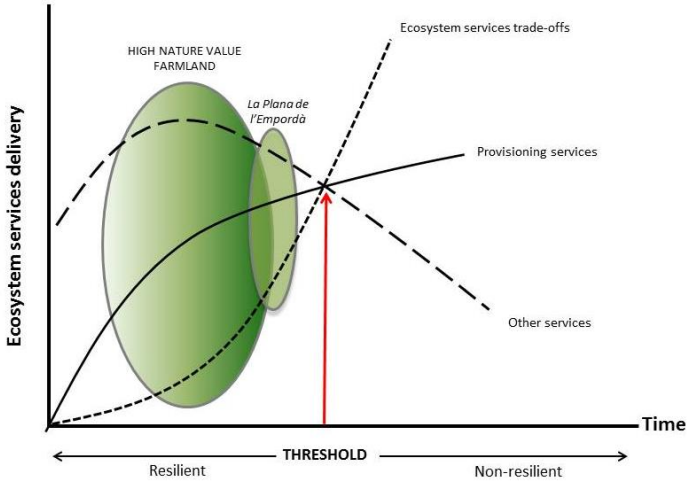

Fig. 2. Conceptual framework analyzing the trends of an agricultural landscape managed primarily with the aim of improving provisioning services (e.g. agricultural production) (source: Soy-Massoni, 2016)

On agricultural land, prospects for enhancing multiple ecosystem services are good, as many services can be produced jointly along with agricultural products, and may benefit from a social-ecological resilience perspective. To minimize trade-offs, multiple ecosystem services should be managed as interconnected bundles in a sustainable, integrated manner (Rodríguez et al. 2006, de Groot et al. 2010; Raudsepp-Hearne et al. 2010). Trade-offs can also be avoided by directing agricultural support toward whole sustainable farming systems approaches; for example HNVF, which at same time deliver environmental, social, and cultural benefits. In that sense, Figure 3 tries to draw a conceptual framework of potential effects of different management strategies in agricultural landscapes. The Figure is inspired by a presentation from Queiroz (2012) where for each landscape a wheat ear indicates the importance of bundles of beneficiaries, benefits and ecosystem services. Natural ecosystem and intensive cropland scenarios have opposite "winners and losers", and trade-offs emerge across beneficiaries, benefits and ecosystem services. HNVF aims to support a balanced management where beneficiaries, benefits and ecosystem services have medium levels of importance but no trade-offs appear among them. The Figure wants to make visible ecosystem services trade-offs due to potential unexpected effects of different management strategies.

While most policies have so far supported single or a narrow range of outputs from landscapes (whether timber, agricultural commodities or heritage), multifunctional landscape policies promote 'bundles' of ecosystem services (Raudsepp-Hearne et al., 2010), supporting food production, biodiversity, recreation and other objectives jointly.

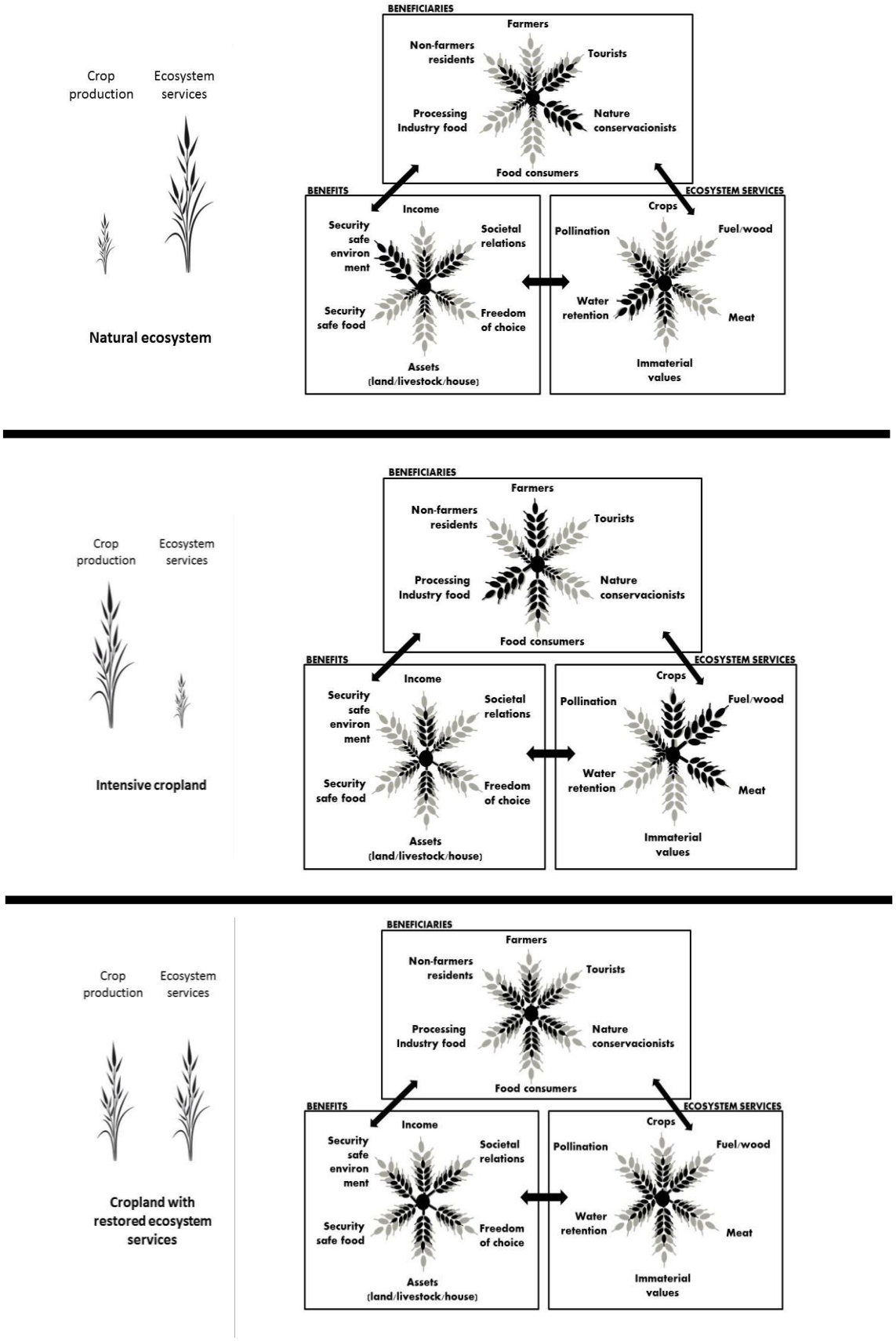

Fig. 3. Conceptual framework of potential effects of different management strategies in agricultural landscapes (source: own, inspired by Queiroz 2012)

1.2 A new perspective for a healthy rural development

If we want a vibrant rural world, we have to eat it. Rural development is totally connected with the act of eating daily, with consciousness and commitment. In a context of agricultural changes, new ideas, concepts and practices emerged responding to social demands for healthy rural areas which produce healthy food and rural landscapes delivering ecosystem services.

Although there is still a long way to go, in recent years the consumption of agroecological products from the new agricultural models has increased significantly (Verbeke, 2005). These guidelines are emerging on all in the countries of the western world, in which the consumption habits of a part of society show a growing interest in the purchase of organic, ethical, healthy and quality food. This act is conceived as a response and criticism of the agro-industrial food model, which has resulted in an agriculture that perpetuates situations of poverty and unequal access to resources, which generates harmful effects for the environment and that the peasantry is deprived of control over what it produces and how it is produced (Duch, 2010). This segment of consumption demands direct access to products, assessing that they are local and seasonal, that they are produced in an ecological, organic or biodynamic way and that guarantee a fair deal between producer and consumer. Agricultural added value it is related with the revalorization of farmers products and services to improve their quality of life. Farmers that produce added value do so by enhancing or distinguishing themselves of the quantity over quality.

In order to conceptualized the most recent changes in rural and urban areas, Monllor (2011) describes the *Agrosocial paradigm* as a way to explain a new rural development perspective, where emerging actors and policies are reconstructing a new way to act in the territory (Ploeg et al, 2015). Monllor identifies 8 different components to describe the scenario where new concepts are flowering and new ideas are becoming strong realities fostering rural development processes: 1) local scale, 2) diversity, 3) environment, 4) cooperation, 5) innovation, 6) autonomy, 7) social commitment and 8) slow focus. This components where classified observing practices and attitudes of a new generation of farmers rooted in the locality, believing in diversification, promoting environmentally friendly practices, cooperating to advance their common cause, introducing appropriate technologies or exploring their own autonomy (Table 1). A new group of farmers fighting for making a living from a multifunctional way of farming, combining the sustainability of environmental, social and economic dimensions of rural life (Milone et al, 2015).

Agrosocial paradigm components	**Agroecological practices**
Local Scale	Selling on the farm
Diversity	Crop diversification
Environment	Organic farming
Cooperation	New forms of commercialization
Innovation	New production techniques
Autonomy	On farm processing
Social Commitment	Labour ethics
Slow Focus	Renewal energy on the farm

Table 1. Components and practices of the agrosocial paradigm (Monllor 2011)

Following Ploeg (2008) researches and ideas, Monllor (2016) also identified a new emerging group of people believing in a different style for farming: *the new peasantry*. Most of the farmers in this group are newcomers to agriculture, but there are also a lot of young farmers, born and raised on a family farm, that are working in a new direction, far away from the agribusiness idea. The new peasants are

all those people who are dedicated to agrarian activity from a renewed paradigm, where the commitment with the land, the food and the people who consume it are the reason main and declared, of his dedication. Farmers that are part of the new peasantry are characterized by selling products as close as they can, by betting in a way resounding for organic production and for maintaining a scale of production small and adapted to the territory they inhabit. It is in this general context that we can talk about a new peasantry as an emerging phenomenon on a global scale based on recovery of the agrarian model prior to the green revolution, combined with multiple innovations and the advantages offered by the technologies of XXI century. Its emergence is global and born in response to industrialization of agriculture and the progressive loss of autonomy of people that make it possible (Ploeg, 2008; Monllor, 2011).

One of the most value issues of the new peasantry is the commitment they have to two main relevant issues: the relations with the environment and the relations with people. In the first one, the way they are producing food is fostering directly the ecosystem services we need for a healthy rural areas. A new generation of people producing organic, direct and fair food, mains that the place they are working is becoming a key element, producing high nature value farmland. The second one, mains that this new wave of farmers is keeping in touch with other people and actors in rural, and also urban areas. That implies that new networks are generated in order to foster new rural development practices.

One of the strategic networks generated from an agrosocial paradigm perspective, is the one that net people producing food with people eating food. As simple as it seems, as crucial as it is. It is not enough to eat or produce organic food; the real change is to understand the value of food as a key element of social transformation. Being part of a fair food system is more than buying local or organic food. It means a whole conception on how important and essential is eating consciously. At this point, another concept is born: *Committed cooking*. The meaning is taking into account the importance of being conscious that eating is more than just feed the body. Committed cooking extends its contribution to different areas, promotes social cohesion, encourages the creation of alternative economic models, ensures food sovereignty, dignifies the peasantry, creates new jobs, contributes to the establishment of population in the territory, etc.

In order to define the new concept of Committed cooking, Lopez Moreno et al (2016) have identified five characteristics: 1) local, 2) organic, 3) seasonal, 4) direct marketing and 5) fair payments. This criterion is what Committed Cooking defines as necessary to transform the act of food consumption into a positive contribution for society and nature. If we follow it, cooking becomes a reflexive act, conscious and political, which promotes healthy relationships between the territory and the people who are a part of it. The promotion and introduction of this criterion in our daily life can make a real paradigm shift. There are social and economic relations in each dish that must be taken into account.

That means that if we really want healthy rural areas we have the responsibility to support the emerging new peasantry, as Ye and Fu (2015:89) assert “Rural development is what peasants do”. For some authors, it is seen as a real revolution of modern agriculture (Ploeg, 2013; Milone et al, 2015), a way to search the autonomy that the socio-technical food regime has stolen forms the free choices of farmers and consumers. In this sense, there are strong new forms of coproduction between the new peasantry and the new consumer force, which are fostering a new circular economy towards a more sustainable system of production and consumption (Ploeg, 2014; Marsden and Farioli, 2015).

1.3 Cultural landscapes shaping identities, perceptions and lifestyles

The socio-cultural embeddedness of landscapes has been further emphasised by cultural geographers who have interpreted landscapes as a particular vision or way of representing the land (e.g. Wylie, 2007). However, it has also been pointed out that there is no simple and direct relation between landscapes and social structures, and landscape representations differs between cultures and individuals (Widgren, 2006). Hence, in the reading of landscapes, the recognition of and outlining the layers, one need to know the nature of the society, the aims and the principles of it, and the values which have directed the legislation and the way of using the land (Tanskanen, 2011).

Landscape has been an ambiguous and intrinsically holistic concept applied both in natural and human sciences. Even popularly thought, landscape is much more than a visual scenery, a passive bed for human action. The common aim of the many meanings of 'landscape' appears to be to describe the division and dialog between nature and culture (Dubow, 2009; Wylie, 2007). The concept can be understood as physical-material but also as perceptive, reflecting its broader and more complex cultural and sensorial sense. The fields of historical and cultural geography have a long tradition of analyzing different kind of human-based layers existing in landscape. Many different kinds of cultural, social, economic, political, and ideological actors lie behind the visible landscape and leave their imprints on it (e.g. Tanskanen, 2011; Widgren, 2006). In addition to the visible, readable discourses, researchers have paid attention to the invisible, socio-cultural and historical strata behind the landscape (Tanskanen, 2011). In fact, landscapes can be understood only in their socio-cultural context. For instance, Palang et. al (2006) argue how different times have created different visible patterns that reflect socio-historical development, but which have also changed people's attitudes and appreciations towards visual environments.

2. MATERIALS AND METHODS

Objectives

The main objective of this article is to discuss a new concept, "Landscape eaters", from a case study carried out in Vilademuls (Girona, Catalonia, Spain) in May 2017.

The case study was part of a pilot project of the Erasmus + *On the way Towards a Low-Carbon Society* (TLCS) project, in which 12 international students from Finland, Poland, Spain, Mexico, Colombia and Peru worked for 2 weeks to diagnose and make proposals for Vilademuls actions to become more "low carbon". The students interviewed local agents and visited initiatives of the primary and tourist sector of the territory (farms, agro tourisms, touristic business, local leaders, etc.). Vilademuls is a mostly rural municipality, and that is why the coordinators of the pilot course decided that the program should work "food" as a main aspect. It is in this context that the idea of developing the "landscape eaters' experience" emerged throughout the course. The aim of the "landscape eaters' experience" is learning by doing. The lunch and dinner menus in Vilademuls' pilot course of Erasmus + TLCS were created in order to discover the local farm products in the area and also to participate actively in the local economy system. A dossier was elaborated and distributed with the students with information of all the products included in the menus. The students were part of the cooking team and they could enjoy the educational and gastronomic experience in every meal. Before to start eating the group talked about the products, the farms that produced the products and other relevant aspects, such the price.

After the pilot course we realized the valuable material we have and the contributions we could make with the analyses of the products and farms which supplied the menus during the pilot course.

Study area

The area where the products were selected was Girona province (Catalonia, Spain). However the pilot course was settled and focused in Vilademuls, a municipality in Pla de l'Estany county. This is the main reason because several products came from this municipality and surroundings. Vilademuls has 789 inhabitants and occupies a surface of 61,5 km2. Vilademuls character is mainly rural with 13,3% of the jobs are related to farming systems. 33 pig farms hosts 36.000 porks and 50 cow farms hosts 5.000 cows. The farming system is mainly based on intensification practices, and only few farms have alternatives to this agrarian model and introduce sustainable practices and/or have final products in farm. Vilademuls landscape characteristic is a mosaic of cereal crops and Mediterranean forests. However, because of the intensification of the practices during the recent years, the traditional landscape is changing and crop parcel sizes are increasing and crop diversity is decreasing. This trend creates a disequilibrium between natural and non-natural elements with high impacts on ecosystem services delivery.

Figure 4 shows a map with the location of the study area and the location of the selected products used in the pilot course. For the analyses of this article we only use 12 of the products we selected, being the ones with more information available.

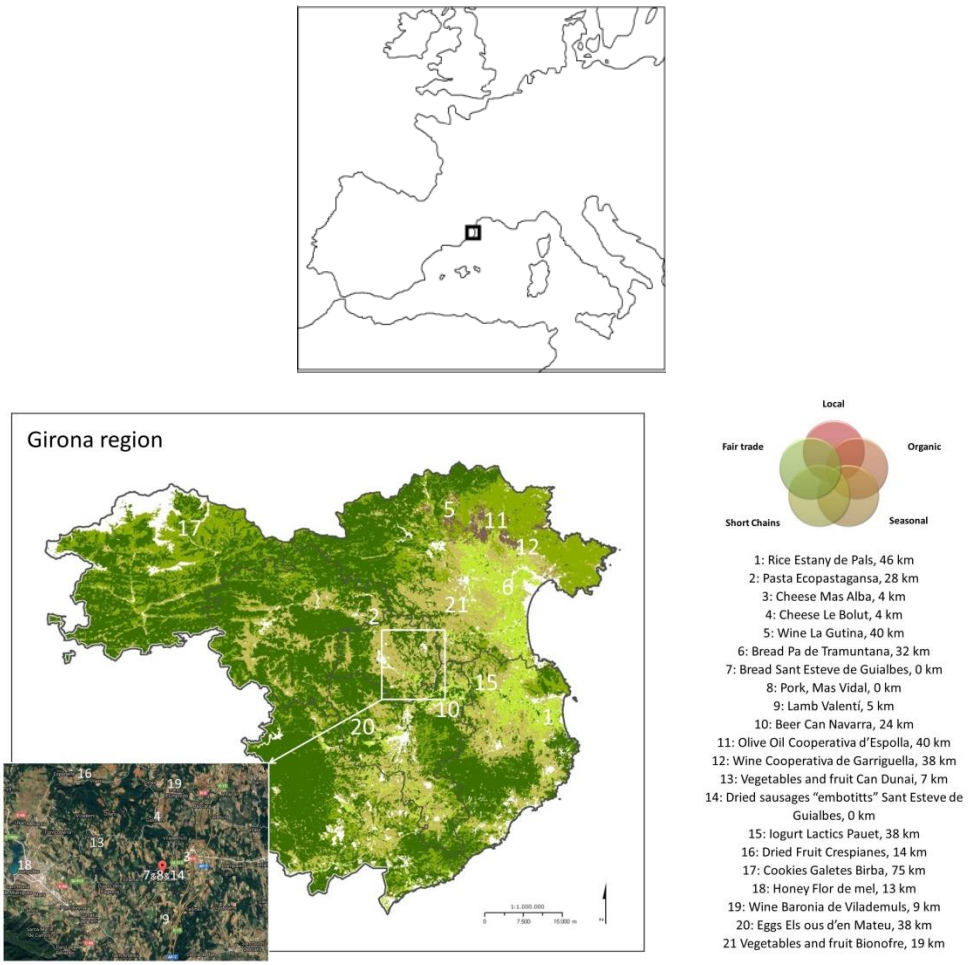

Fig. 4. Study area and location of the selected products

Products selection criteria

We use the concept of "Committed Cooking" in order to select the products in the pilot course menus. The following figure identifies the five characteristics that define Committed Cooking:

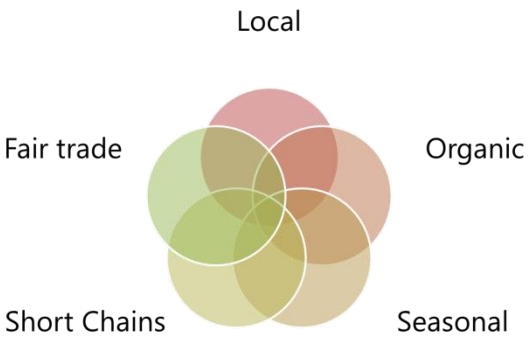

Fig. 5. Committed Cooking characteristics

We tried to select products from farming systems with added value, even if they did not meet all the Committed Cooking characteristics. For our personal background we personally know most of the Girona added value farms and this is why we could select a lot of products with interesting characteristics to be explained.

Data collection

For each product we collected information of 12 attributes related to the farming system and practices and the landscape values ecosystem services delivery.

Data was collected through three sources: the first one was based on our personal knowledge on each farm; the second on a phone interview to the farmers. And finally, some specific information was found in the website of the farms.

3. RESULTS

Table 2 shows for each product the characteristics of the environmental attributes where it is located and the contribution of the farming practices to maintain certain landscape values and ecosystem services. Of the 12 products 5 are produced in a protected area (41,6%). 58,3% work with local and traditional varieties of crops and livestock breeds. The landscape values of the products' farming systems are divers: wetland and seasonal ponds important for biodiversity conservation, traditional crop terraces with high scenic value, traditional forest-crop mosaic and maintaining of open spaces relevant for wildfire prevention, etc. All the selected products come from a farm which offers provisioning services to society, but also other ecosystem services: 66,6% offers regulation services, 75% offers cultural services and 58,3% offers biodiversity conservation.

Product	**Protected area**	**Local and traditional varieties/breed**	**Landscape values**	**Ecosystem services delivery**			
				Biodiversity	**Regulation**	**Provisioning**	**Cultural**
Rice "Arròs Estany de Pals"	√	√	Wetland important for birth species, aesthetic	√	√	√	√
Pasta "Ecopastagansa"	√	√	Open spaces, mosaic	√	√	√	√
Goat cheese "Mas Alba"			Maintaining landscape mosaic with open spaces, wildfire prevention	√	√	√	
Wine "La Gutina"	√	√	Seasonal ponds protected by the Natura 2000 network, cultural heritage	√	√	√	√
Bread "Pa de tramuntana"	√	√	Landscape mosaic, traditional cereal varieties	√		√	√
Olive oil "Cooperativa Espolla"	√	√	Traditional terraces landscapes			√	√
Vegetables "Can Dunai"		√	Local vegetables			√	√
Valentí's Lamb		√	Extensive grazing, wildfire prevention	√		√	√
Pork "Mas Vidal"			Maintaining landscape mosaic with open spaces, wildfire prevention		√	√	
Eggs "Els ous d'en Mateu"			Recovery of abandoned agricultural land		√	√	
Goat iogurt "Làctics Pauet"			Maintaining landscape mosaic with open spaces, wildfire prevention	√	√	√	√
Nuts "Crespianes"			Traditional landscapes		√	√	√
Results	**Percentage**	**Percentage**		**Percentage**	**Percentage**	**Percentage**	**Percentage**
	41,6	**58,3**		**58,3**	**66,6**	**100**	**75**

Table 2. Description of the landscape and ecosystem services characteristics of each product

On average 66,6% of the farmers are continuers in their farm, and the rest (33,3%) are new farmers, meaning they did not have any relationship with the farming sector before. Only 16,6% have organic certification. 75% do on farm processing and 66,6% are considered closed cycle farming systems. 33,3% carry out diversification practices (on production and/or services). 33,3% of the farms have touristic infrastructure such as agrotourism, agroshop or offer ecotourism experiences on farm. 41,6% of the examples have introduced new forms of commercialization of their products, like on line selling or consumer groups. Although all the farms have some added value characteristics, we consider that 33,3% of them are related to an agroindustrial model based on an intensification of the practices, and the rest (66,6) respond to an agrosocial model described by Monllor (2011).

Product	Farmer profile		Organic certification	On-farm processing	Closed cycle farming	Diversification practices		Touristic infrastructure	New forms of commercialization	AgroModel	
	Continuer	New				Production	Tourism			*Agro business*	*Agro social*
Rice "Arròs Estany de Pals"	√			√	√				√		√
Pasta "Ecopastagansa"		√							√		√
Cheese "Mas Alba"	√			√	√		√	Agrotourism			√
Wine "La Gutina"		√	√	√	√	√	√	Agrotourism, touristic experiences	√		√
Bread "Pa de tramuntana"	√									√	
Olive oil "Cooperativa Espolla"	√							Agroshop		√	
Vegetables "Can Dunai"		√		√	√				√		√
Valentí's Lamb	√			√	√						√
Pork "Mas Vidal"	√			√			√	Agrotourism and ecotourism experiences		√	
Eggs "Els ous d'en Mateu"		√	√	√							√
Goat iogurt "Làctics Pauet"	√			√	√	√			√		√
Nuts "Crespianes"	√			√	√					√	
Results	Percentage		Percentage	Percentage	Percentage	Percentage		Percentage	Percentage	Percentage	Percentage
	66,6	33,3	16,6	75	66,6	33,3		33,3	41,6	33,3	66,6

Table 3. Description of rural development attributes of each product

4. DISCUSSION

4.1 The concept of landscape eaters

Landscape eaters is a double-barrelled concept in which the first part, landscape, is understood as a venue of production, marketing and consumption of food supplies. It is not only a passive arena for social change in time but it is an active and complex part of process, in which landscape is producing new ways to value an environment. Even if a landscape per se is a fascinating concept, in the concept of landscape eaters we want to focus on action by consumers of food. We are lying to the strongly simplified idea how increasing environmental consciousness leads to new ways of thinking and reshapes our environmental values which directs to more conscious environmental action (Kollmuss & Agyeman, 2002). Naturally, in practice this process is more complex (e.g. Kollmuss & Agyeman, 2002; Fishbein & Ajzen, 2010) but we want to emphasize how all of our decisions done in food processes highly influences to our environment.

In that sense, we are arguing that agricultural landscapes are deeply value-based environments. Naturally, some influences can be fast recognized as a part of physical and visual landscape, as physical-material changes, but some of them are non-material changes recognized in the frames of ecosystem services. Nowadays, food has many other meanings that just subsistence of an individual – for many it links to a general way of living or lifestyle. In that frame, individuals are doing invariably more and more personal and collective decisions which are proceeding to both material and non-material impacts on the landscape level. By eating or more generally, by consumption of food supplies we are visualizing our environmental values and, at the same, reformulating our landscapes.

Landscape-eaters' brings a new angle to the topic of foodscapes. MacKendrick (2014) describes foodscapes as "the places and spaces where you acquire food, prepare food, talk about food, or generally gather some sort of meaning from food". Thus, foodscapes deal with the relation between the food supply chain and different diets according to socioeconomic aspects; it is somehow a "sociology of diets" concerned with the correlated public health issues. Originated in the field of geography, with landscape eaters an inverted and very geographical perspective of foodscapes is suggested. Instead of just looking at what we eat and how this affects our health, according to our cultural environmental, income and who is supplying us what food, the landscape eaters' approach proposes to visualize what rural landscapes are supported or neglected based on our diet. Hence, it is chance to actually make cartographic representations of the agro-industrial versus agro-social share of diets. From those diets that are totally disconnected from the local landscapes and relying on super-processed food from no matter where; to those that feed from local varieties from all over the world, yet mainly from nearby farming lands. The production of maps to show this origin of the different diets, will be an additional element to understand the reality of foodscapes and how urban inequalities are an extension and driver of unsustainable rural development (environmental and ecosystems management inclusive).

When the landscape eaters concept is turned into an experience it becomes a relevant educational resource, for higher education scholars but also for the general public. Regarding the latter, current shopping and eating habits are majorly disconnected from the local food chains, due to the dominant position of whole sale trade, supermarkets, and shopping centers in distribution and supply to the end-consumer. The rural-urban continuum delivered by the local food chain is lost to the point that consumers can hardly recognize the added value of such products, when available, and shopping attention is mainly focused on brands and prices.

Through the landscape eaters' experience participants are given the opportunity to discover where they are through what they eat. This is to learn who is behind that food, what the landscape around that farm looks like, how that farm is linked to keeping a healthy environment and thriving ecosystems, etc. Immediately, for the commensal each specific product becomes much more than just food, especially when he/she identifies a personal link to that landscape, from either lifelong memories or recent/eventual experiences. A sense of belonging can be restored or induced through one of the most satisfying and basic activities; eating.

On the other hand, it could be said that a higher level of sensitivity is awaken through the landscape eaters' experience. By learning about the values behind each product, the participants' receptivity and attention towards other aspects besides taste increase. Therefore, gastronomic factors often dismissed become interesting, such as ancient/local varieties, traditional recipes, rare cooking methods, or even the passion for practicing some degree of agriculture.

In territories where rural tourism is an important segment of tourism development, or there where non-urban landscapes are upon the main touristic attractions, the landscape eaters' experience opens up as a potential tourism product with many positive feedbacks. It can be developed in form of an experience pack, in which restaurants, rural cottages and farms combine in a specialized tour local gastronomy, accommodation and the discovery of all the socio-ecological benefits those farmers are working for. Yet, there are more simple ways to foster landscape eaters' experiences, such as, offering guests of rural cottages, after bookings confirmed, a list of local products that they can acquire beforehand and find in their rooms upon arrival, which may also include services, such as visits and

tastes on the farms themselves. Or, cooperatively produced leaflets with a catalogue of local products, places where to find them, and discovery activities. Likewise, restaurant menus / dishes based on local products and complemented by some specific oral, written and visual storytelling. In summary, it is about opening a window to what actually shapes the landscapes tourists are attracted by, and somehow making them feel important and the same time responsible for their conservation, through eating choices, also while on vacation.

For scholars, being engaged in a landscaper eaters' program is a very concrete way to enable coherency between ethics, knowledge and actions linked to their learning process. Because, how strong can a learning program be if when it comes to practicalities, such as food, students end up eating globalized agro-industrial products with high carbon footprint and no "better world" mission behind them? Moreover, with the landscape eaters' experience as part of a TLCS pilot course, a body memory effect is originated, anchoring in the students' value system, emotions and understanding, a direct notion of the collective and individual challenges, efforts and commitments required for low-carbon food systems to develop.

In the TLCS project the landscape eaters approach was embedded in a wider learning process referred to as knowledge cloud; i.e.: "a student centered learning environment formed by a variety of multi-sensorial learning resources and methods, … that will imply all senses for a 'body memory' effect". With landscape eaters and the knowledge cloud it is expected to trigger student engagement on the LCS topic beyond the mere acquisition of competences and skills. The ultimate aim is to foster the notion that comprehensive low-carbon lifestyles are required and that own living schemes cannot be detached from one's professional missions and activities, or vice versa. In other words, that closing cognitive inconsistency gaps also means self-determination, action and conscious effort.

All the arguments above-mentioned confirmed that for students TLCS project was an open-minded and knowledgeable experience in a context of the concept landscape eaters. In fact, it was a kind of learning by doing action, learning through personal experience as the students had a chance not only to observe a close producer – consumer relation chain, but also being a part of self-made food process (e.g., a visit at the butcher's). Meetings with local producers, local farmers who shared their experience, including pros and cons of their professions, influenced on students' attitude not only to food their had eaten, but with a greater respect they perceived to people who made this food for them. Finally, it was the purest discovering the power of local means by building bonds with local landscape, local culture and creating connection with the place of living through finding uniqueness in small things that are unnoticeable in a daily life.

4.2 Supporting rural development and ecosystem services delivery by eating

In a trend of intensification of the agricultural practices with a loss of high quality landscape attributes and ecosystem services, and family size and added value farms, initiatives of alternatives agricultural models are relevant.

Here we analyzed the farming processes involve in 12 products from two main points of view: socio-economic aspects and landscapes and ecosystem services delivery. The exercise aimed to explore and discuss the positive contribution of farming of these products for the society and environment.

The production processes of 41,6% of the products that we have listed in this article are located in protected areas, thus contributing to the values by which the space was protected. These are productions that maintain certain ecological functions of the protected area and / or cultural and landscape heritage. The values of the landscape that maintain the 12 products are diverse, among them: agroforestry mosaic, wildfires risk control, maintenance of open spaces, permanent and / or temporary wetlands, high aesthetic value, etc. Values are present thanks to the management of farms and it is necessary to continue to guarantee its presence over time.

The temporary pools of *La Gutina* or the wetlands where the *Estany de Pals* rice is produced, both are examples of high value for biodiversity, regulation services (water cycle, carbon), and with great potential for leisure, education, sense of place, and landscaping beauty (cultural services). *Valentí*'s lamb and the *Lactics Pauet* goats are examples of extensive livestock that contribute to the

management of underground biomass and to the resilience of the Mediterranean forest to wildfires. At the same time it maintains paths and traditional ecological knowledge linked to the management of herds, both recognized as important cultural services. The open spaces that are maintained thanks to the cultivation of cereals for the production of *Ecopastagansa* are relevant in the area where the farm is located as it is a homogeneous forest with high wildfire vulnerability and with a low diversity of habitats and ecosystems.

More than half of the products use local and traditional breeds and varieties for their crops and livestock (sheep, vineyard, oil, orchards and cereals). Often are less productive varieties but with high gastronomic value and, above all, of maintaining the agrobiodiversity of the territory. *Argudell* is an example of a variety of olive trees that has been cultivated for centuries in the area with a high capacity to adapt to climatic situations, and highly appreciated for the quality of olive oil. El *Pa de Tramuntana* is an example of a project (22 farmers participating) that works with traditional varieties of wheat in a context where cereal crops for human consumption have been almost lost. In this case the educational value is very large.

Overall, all products provide ecological and cultural values in the context where their production is located, besides the provisioning services they provide. *Trade-offs* between provisioning services and the rest of services is low or even the production of crops or livestock results in a symbiosis which benefits the rest of services (*trade-ons*). The maintenance of the production of these products enhances ecosystem services, thus society quality of life in many ways.

The landscape eaters' experience has shown how important is buying food from local and organic producers. The first outcome is the network of entrepreneurs that the map shows. There are 21 different experiences that offer the opportunity in the local area of buying food with some of the key components of the new agrosocial paradigm. From a rural development point of view, this network of people and business shows how important is to keep and foster local and direct relationships in order to develop a rural area. Rural development is constructed through the many encounters that the different actors take place in order to create a dynamic and active local food system.

The second idea related to rural development has to do with the novelty theory of Schneider and Gazolla (2015: 133) that affirm that "novelties often emerge outside of formally established norms and regulations". The experience of the producers, show that most of them are involved in processes of innovation in order to survive in the local food system, at the same time that it explains most of the diversification activities that they assume. On-farm processing is one of the most used (75%), following by closed cycle farming (66,6%). These practices shows how important are to differentiate the quality of the production and also the necessity to connect with the consumer.

The third observation assumes that the innovative spaces for a new peasantry generation are in a framework of rural development. The modernization paradigm has shown that it cannot contribute to a healthy balance in rural areas. The rural development practices shown in most of the study cases, how important is supporting these entrepreneurs daily, buying their products directly and connecting them with innovative ways of coproduction. The new peasantry has its opportunities in an agrosocial framework, where the society can value the work they do producing healthy and committed food.

Finally, it is interesting to note that many rural development practices also adopt a strong long-term perspective. The small steps we do today will have a huge impact tomorrow. From a rural development perspective it is crucial to understand that the commitment with nature, food and people has a "marathon perspective". This long term means that in the meantime there is a real imbrication of paradigms. Nothing is pure. The agrosocial paradigm it is not a clear framework where the actors act freely without conflicts. Most of the times it is just the opposite, rural development is characterised as much by conflicts as by cooperation, like Figure 3 showed (Ploeg et al, 2015: 218). As we have appreciate in the different cases of study, some producers may spend part of their time engaged in conventional farming and another part being involved in creating new patters (Ploeg et al, 2015: 20), like Pork "*Mas Vidal*" or Nuts "*Crespianes*".

5. CONCLUSIONS

In this article, we wanted to present experiences of landscape eaters carried out in May, 2017 in Vilademuls, Spain. One of the main aims of the study was to theorize and express the concept of landscape eaters, the nexus between landscape and one of the basic action of people, eating, from the viewpoint of value-based thinking. Consciously we did not focus only the used food supplies, but we emphasized the conceptual and theoretical elements related to this very topical theme on the European level. With this limited data, we could prove how consumption of food supplies, eating, has a contribution to delivery of ecosystem services, landscape preservation and, more generally, to rural development.

ACKNOWLEDGMENTS

This study was supported by the Erasmus+ funded project "On the way towards a low-carbon society – Increasing professionalism in land use and landscape management within climate change" (2015-1-FI01-KA203-009080).

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