

# CASE STUDY

## "NICHE PRODUCTS AND TOURISM IN GARFAGNANA" (ITALY)

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# 1 Introduction

The case study focuses on Garfagnana, a mountain area located in the north-western Tuscany, in Lucca Province. Garfagnana is a very homogeneous area for environmental, historical, economic, social, cultural and institutional features. This homogeneity is mainly due to the geographic features of the area, since Garfagnana coincides with the northern part of the catchment area of the Serchio River and it is a valley enclosed by mountains on three sides. The area comprises sixteen municipalities and covers an area of 533 square kilometres.

Garfagnana can be considered an homogeneous unit also from an institutional and policy perspective: in terms of economic programming the area is considered a local economic system. In the Regional RDP 2007-2013 (Regione Toscana, 2009) Garfagnana was classified as area D (rural area with complex problems of development). In addition, the territory of Garfagnana coincides with the jurisdiction of the Municipalities Union (MU) of Garfagnana.

**Figure 1:** The case study area



Amongst the broad range of Environmentally and Socially Beneficial Outcomes (ESBOs) that farming and forestry provide in this socio-economic system, the most representative and relevant ones are:

- **Biodiversity** - Species and habitats: high levels of crop and livestock genetic diversity (environmental);
- **Landscape** - Protecting landscape character and cultural heritage (social and environmental);
- **Rural vitality** – maintaining and sustaining rural identity through cultural practices, knowledge and traditions; high levels of social capital, trust and cooperation between people (social).

As it will be discussed in the report, these ESBOs are highly interconnected, since the development strategies implemented in the area are strongly oriented towards the valorisation of both material and immaterial resources of the territory as well as the combined provision of

social and environmental outcomes. The main activities analysed in the report are related to the enhancement of landscape character, cultural heritage, biodiversity as well as on the valorisation of farming sector through agro-tourism and commercialisation of typical agri-food products. These activities resulted on the improvement of the tourist attractiveness of the area as well as on the decrease the abandonment and emigration, with positive effects on rural vitality.

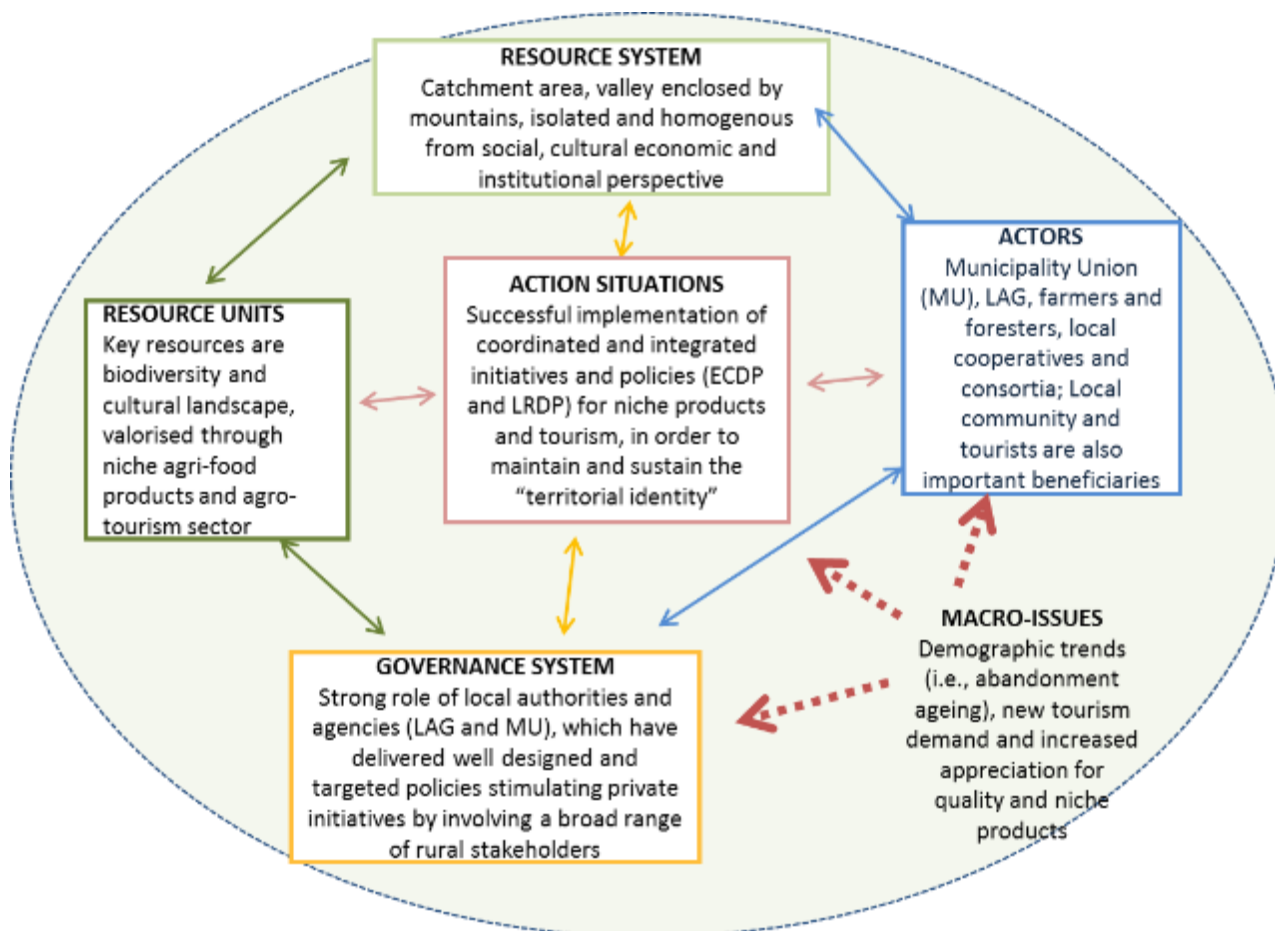
The main institutional actors which have been involved in the design and in the implementation of local strategies finalised at ESBOs provision are:

- The LAG Garfagnana "Environment and Development", in charge of implementing LEADER and other local strategies and investments;
- Until 2013 the Mountain Community (MC) was the main local authority in charge of the socio-economic development of the area, including the forestry and farming sector. Since 2013 the MC has been (partially) substituted by the Municipalities Union (MU).

These two main actors collaborated with a broad range of rural stakeholders, including farmers and farmers unions, local consortia, cooperatives and small business.

## 2 Definition of the social-ecological system (SES)

### 2.1 Figure of the SES, using the SES Framework



## 2.2 Short characterisation of key drivers/motivations

As outlined in the WP3 report (Mantino et al., 2016), the key drivers/motivations for the provision of selected ESBOs in this case study are an interesting and well-integrated mix of public and private drivers. Local strategies and policies, especially the Local Rural Development Plan 2007-2013 (Provincia di Lucca, 2006) and the Socio-Economic Development Plans (Comunità montana della Garfagnana, 2000; 2005) were strongly oriented towards the valorisation of agricultural multifunctionality and diversification through both public and private initiatives, which resulted in an integrated delivery of socio-economic and environmental goods and services. These strategies have helped the territory to focus its development on well-defined priorities and goals which have been pursued also thanks to a coherent and well-structured regulatory framework, mainly defined at the regional level, alongside with the availability of EU funding, especially the European Regional Development Fund (ERDF) and the European Agricultural Fund for Rural Development (EAFRD). The availability of these financial resources can be considered a pre-requisite not only to enhance the multifunctional role of local farming but also for the overall development of the territory.

According to the stakeholders interviewed (see annex) key drivers in Garfagnana are the coherence of the local strategies, the design of well-tailored and targeted policy intervention, as well as the collaborative approach undertaken in several sectors, which transformed Garfagnana in successful case of local and endogenous development increasingly focused on delivering social and environmental outcomes.

## 2.3 Description of important variables chosen

The most relevant variables considered in the case study are listed (and briefly described) in the annex.

## 2.4 Discussion of the SES

A key element of this SES is the capacity to react to difficult social and economic conditions experienced during the '80s and '90s through a broad range of coordinated public policies and market mechanisms designed and implemented through participatory and inclusive methods. In order to better understand the most innovative mechanisms experimented and the related enhancement in ESBOs provision, it is necessary to look at the different SES components in an evolutionary perspective (table 1).

As described by Romano and Tudini (2014), from the '70s to the '90s Garfagnana experienced an important phase of devolution of power to local institutions, which created a decentralised and plural governance system. This system created the pre-condition to experiment more innovative solutions since the early 2000s, which transformed Garfagnana in a successful example of local endogenous development. Indeed, during the last twenty years the combined effects of local, national and EU policies, together with the development of collective and cooperative initiatives in the agro-food sector delivered important results not only in economic terms, but also in terms of ESBOs provision.

The analysis carried out in this report focuses on the current features of the local SES ("the endogenous development" SES).



**Table 1:** Evolution of the local SES

SES components	Devolution ('70s-'90s)	Endogenous development ('00s – '10s)
<b>Social, economic, and political settings</b>	Dependency culture, economic crisis and emigration, local tourism	Local empowerment and engagement, increasing demand for quality products and presence of foreigner tourists
<b>Resource systems</b>	Economic and social decline of agriculture and forestry sector	Economic viability of farming diversification
<b>Governance systems</b>	High dependence from public support, regional parks and provincial administration as key actors. Mountain Community very large and powerful institution	Local policies and strategies increasingly influenced by coordinated interventions of local institutions (MC, LAG)
<b>Resource Units</b>	Low appreciation and valorisation of environmental and social benefits provided by farming and forestry	Increasing recognition of the economic value of the key ESBOs. Higher valorisation of social and environmental dimensions of farming and forestry
<b>Actors</b>	Devolution of power and responsibilities to local institutions but still very influential role of political parties and agricultural unions	Development of local networks, consortia and producers organisations. Increased trust amongst institutions, private stakeholders, rural communities and farmers
<b>Action situations</b>	First grass roots actions in agro-tourism sector and in valorisation of local agro-food products to cope with the economic crisis and the decrease of public support	Acknowledgement and valorisation of identity: key role of local institutions, RDP and regional policies in enhancing the multifunctional role of agriculture and in strengthening the rural identity

Although in this SES the provision of the selected ESBOs is often the result of a combined effect of a broad range of small projects and initiatives, the report is mainly focus on the activities and sectors that, according to the stakeholders interviewed, are the most relevant and representative of the successful local arrangements in place and in determining the key action-situation, namely the reinforcement of the rural identity. The local SES is discussed mainly through the analysis of such initiatives, which are listed in the table below.

**Table 2:** The most relevant projects/initiatives for the ESBOs

Initiative/sector	Drivers/mechanisms	Actions/adaptations	Main ESBOs delivered
Conservation of local plants and breeds	Initiatives designed and managed by a public institution (MU)	Increasing involvement of local farmers	Biodiversity (crop and livestock genetic diversity)
Niche products	Market mechanisms	Collective actions stimulated by local institutions (MU) and local organisations (CGP)	Landscape (character and cultural heritage) and rural vitality
Agro-tourism sector	Integration of public support and market mechanisms	Strategic investments and coordinated support by MU and LAG	Rural vitality

## 2.5 Common aims, conflicting interests and goals

The development of a local strategy finalised at reaching common aims and goals is one the main strengths of this SES. The increasing tourism demand, especially of foreigners has been recognised a strong driver to the development of agro-tourism sector. The offer of new services and infrastructures has been stimulated through the policy incentives available (mainly the RDP) and by a well-structured regional regulatory framework, which have been successfully exploited by the local institutions. In some ways this process can be considered the driving forces through which a broad range of initiatives related to farming and forestry became economic sustainable (i.e. commercialisation of niche products through direct selling or other forms of short supply chain, agro-tourisms and other typologies of rural tourism, projects and initiatives on the valorisation of local biodiversity and landscape, etc.). These common aims were pursued through a complex combination of several factors that, all together, contributed to the strengthening of the local identity. Key elements are:

- The successful implementation of the first socio-economic development plan - SEDP (Comunità Montana della Garfagnana, 2000; 2005);
- The coherence of the SEDP with the Local Rural Development Plan (LRDP) in terms of objectives and their complementarities (combination of investments with knowledge building and services);
- The availability of EU financial resources for farm diversification through RDP and other EU funding;
- The bottom up and inclusive approach experimented through LEADER programme;
- The capabilities and attitude of the most influential representatives of local institutions.

While the common aim was enhancing rural identity through multifunctional farming, some conflicts also have arisen:

- Tensions between local institutions and agricultural unions, which demonstrated interests only towards professional farms, without paying the adequate attention towards the problems of small, diversified and often part-time or pluri-active farms;
- Conflicting interests between local farmers developing short supply chains initiatives and some local retailers and processing firms.

## 3 Status of the SES and potentials

### 3.1 Description of the SES

In Garfagnana the strategies adopted to enhance the rural identity (action situation) are the result of an effective collaboration between the public and the private sector (actors). Indeed, in many cases in Garfagnana the public support stimulated private initiatives and supported small businesses as well as local cooperatives and consortia (governance system), in order to improve and valorise the economic, social and environmental features of the area (resource system). At this regard, it may be argued that the area is an emblematic case where connections between the environmental, social and economic subsystems have been strengthened



and where new synergies were found (resource units). Examples of positive synergies - often based on private-public partnerships or collaborations - can be found in different sectors such as the development of niche products within the agro-food sector, the development of tourism and the landscape management activities and the use of biomass in the energy and forestry sectors.

Indeed, what is relevant to highlight in this SES, are the strong interlinkages between the different sectors and subsystems. These interlinkages are mainly due to two factors.

The first one is related to the nature and features of sectors involved: farming and tourism are amongst the most relevant activities in the area shaping, in a very bounded way, the social and environmental features of the territory. To make an example, the presence of tourism is strongly linked to the availability of niche products provided by the agro-food sector as well as by the presence of a well-developed agro-tourism sector. This is also due to the main features of the farming sector, characterised by the presence of part-time, pluri-active-farms (usually small and diversified farms).

The second factor is more related to the specific institutional and social arrangements present in the SES, since local institutions have been able to implement strategies which go well beyond the farming and forestry sectors, trying to include all the relevant actors that potentially could give a contribution to the overall objective of enhancing the “rural identity”. As pointed out by a representative of the Municipalities Union (MU): *multifunctionality has been one of key words of the recent development of the area. Since early 2000s the strategy of the territory has been based on three points, which form the vertices of a triangle and that complement reinforce each other: multifunctionality, quality and identity. In this model we tried to work on activities that could justify the presence of farmers in the area and at the same time that could make farming activities sustainable from the economic point of view. The farm is the most important element in strengthening this system. Farming diversification and especially agro-tourism is a key factor to improve the economic viability of local agriculture together with the enhancement of biodiversity, quality and landscape* (Interview n. 2).

### 3.2 Relationships between farming and forestry, and the quantity and quality of ESBOs

As discussed above, in Garfagnana the provision of the selected ESBOs is the result of an integrated strategy where it is difficult to identify a single mechanism of provision for each ESBO, since for their nature, the selected ESBOs are strictly interrelated and they reinforce each other. Although agriculture plays a significant role, in order to have a more comprehensive picture of the dynamics observed in the SES under study it is also necessary to consider the relation of farming with the sectors and activities relevant in mountain area (i.e. tourism, education services, management and restoration of built heritage, landscape management, etc.). Nevertheless, while the role of these sectors has been acknowledged alongside the report, a particular attention is given to the specific role of agri-food sector in enhancing the three selected ESBOs. The relation between the farming and forestry activities and the ESBOs provision has been carried out through the analysis of selected initiatives/projects that, according the stakeholders interviewed, can be considered the most innovative/relevant ones.

With regard to **biodiversity**, in Garfagnana there are several initiatives aimed at preserving crop and livestock genetic diversity, with a special focus on traditional breeding and varieties maintained *in situ* by farmers. The most relevant initiatives are the following ones:





- The networks of “custodian growers”, who preserve and cultivate a broad range of traditional crops. This network is part of a regional initiative regulated by the Law 64/2004, which provides different tools (including financial re-sources for local institutions and payments for local farmers) to protect and add value to the patrimony of local breeds and varieties.
- The livestock farming of traditional breeds preserved thanks to projects and initiatives developed by the MU and local farmers associations (the most relevant traditional breed are the “Garfagnina Bianca” sheep and the “Garfagnina” beef).

**Figure 2:** Traditional crop and fruit variety cultivated by custodian growers



Source: the author

**Figure 3:** Garfagnina beef



Source: the author

The increasing presence of traditional crops and livestock systems gives a substantial contribution not only to the preservation of biodiversity (crop and livestock genetic diversity) but also to the **landscape character and cultural heritage**. According to the stakeholders interviewed (interviews n. 4, 9 and 12) at this regard the most relevant aspects to be considered are:

- The traditional agricultural crops recently cultivated by some farmers and farmers co-operatives, especially potatoes and beans, which are often associated with specific landscape features such as terraces and open fields;
- The grasslands and pastures associated to the traditional livestock systems;



- The traditional chestnut woods, where usually are also located the rural buildings called “metato”, where the chestnut are dried to make the typical floor.

**Figure 4:** Pasture and traditional potatoes plantation



Source: the author and Rino Manetti, Cooperativa Pania di Corfino

**Figure 5:** Typical chestnut wood and “metato”



Source: [www.cerasa.garfagnana.eu](http://www.cerasa.garfagnana.eu)

In Garfagnana the enhancement of the aforementioned environmental dimensions of farming is strongly linked to several cultural and social factors which can be synthesised in the concept of “rural identity”. According to the stakeholders interviewed (interviews n. 1 and 2), the valorisation of rural identity is the main factor involved in the provision of **rural vitality**. In the case of Garfagnana the main aspects to be considered within this multi-dimensional ESBO are:

- The presence of several associations, organisations and consortia that demonstrates the high levels of social capital, trust and cooperation within the local community.
- The market of traditional agri-food products and the associated farming practices, that played a key role in embodying, maintaining and sustaining the “sense of place”.
- The economic sustainability of such practices is mainly due to the agro-tourism sector, that in the last twenty years has experienced an impressive development. Amongst the main factors beyond such successful development there is also the regulatory framework adopted at the regional level. Indeed, the Tuscany laws on agro-tourism (RL 30/2003; RL 80/2009; RL 4/2014) have facilitated the tourism activities also for

small farms located in mountain and marginal areas, by granting several dispensations (although the law aims at ensuring the predominance of agri-cultural activities in terms of farm revenue in these areas is not so strict).

**Figure 6:** A local agro-tourism



Source: the author

### 3.3 Key motivational, institutional and socio-economic factors

The design of coherent and well-targeted policies has been recognised as one of the most relevant factors enabling transformative and innovative practices in Garfagnana. The effectiveness of the policy framework in place in Garfagnana is the result of several conditions, which can be summarised in the following points:

- The relative poverty of the area, for which the amount of resources available through the European Regional Development Fund (ERDF) and the European Agricultural Fund for Rural Development (EAFRD) represented a significant component of the overall financial resources mobilised within the local economy;
- The lack of strong private actors which could have blocked the local governance settings or that could make it inconsistent;
- The presence of trust and collaboration (social capital), stimulated and ensured by a few representatives of local institutions, who acted as important leaders and who designed and implemented (effective) local policies.

When looking in greater details at the policies adopted to enhance the provision of ESBOs, it is necessary to consider not only policies having both direct and indirect focus on ESBOs, but also all the incentives and regulations that may favour the adoption of sustainable farming practices and that have the potential of enhancing the economic viability of local farming sector (Mantino et al., 2016).

This approach is particularly relevant in the case of Garfagnana, since the nature of the action-situation analysed (the building of rural identity) as well as the presence of “rural vitality” amongst the ESBOs analysed, call for an analysis which takes into consideration a broader range of policy tools. In addition, as synthesised in table 3, it is also necessary to consider the multi-level institutional system in place, by looking at how different government tiers have interacted and through which mechanisms local strategies have been designed and implemented.



As outlined in the table, the valorisation of farming multifunctionality in Garfagnana is the result of combined effects ensured by specific national and regional regulations, as well as targeted interventions financed by EU policies (mainly through RDP) and implemented through strategies locally defined (e.g., Local Rural Development Plan 2007-2013 and the Socio-Economic Development Plans). The mechanisms of delivery, based on a fruitful integration of objectives and complementarity between financial resources, have ensured the valorisation of farming multifunctionality and, indirectly, an increased provision of ESBOS through farming and forestry.

**Table 3:** Policies and multi-level institutional governance in Garfagnana

Policy frame impact- ing on selected ESBOS	Level of governance		
	EU	State/Region	Local area
Regulatory framework	Structural funds regulation Rural Development Regulation	Legislative Decree n. 228/2001 on multifunctional agriculture Regional forestry law (LR n. 39/2000) Regional Law N. 64/2004 on conservation of local breeds and varieties Regional laws on agro-tourism (RL 30/2003; RL 80/2009; RL 4/2014)	
Policies with direct focus	LIFE programmes	Agro-environmental measures (RDP)	
Policies with indirect focus		Diversification and investments (RDP) Payments to areas facing natural or other specific constraints (RDP) LEADER (RDP) Quality schemes for agricultural products and foodstuffs (RDP)	Local Rural Development Plan Socio-economic plan

In the framework of this multi-level institutional governance, it is also important to recognise the motivational and socio-economic factors that enabled transformative practice in this SES, by taking into account the selected initiatives and projects particularly relevant for the ESBOS under study. As outlined in the table 4, in the key sectors analysed the regulatory and policy framework resulted particularly strategic, since it has been mainly targeted to stimulate private initiatives and to support small businesses, in order to achieve an integrated delivery of



economic, social and environmental objectives. At this regard it may be argued that in Garfagnana market mechanisms have been not only important drivers for the provision of selected ESBOs, but they can be considered a necessary requisite which have made the public intervention effective, especially in the medium-long term.

An example of this dynamic is represented by the financial and technical support that local institutions have ensured to *Garfagnana Coop*, a company which is playing a key role for the economic viability of local farmers and, indirectly, for the maintenance of social and environmental benefits that the presence of small farms ensure in a mountainous area. Similarly, the biodiversity conservation strategy defined by the regional law n. 64/2000 and the development of custodian growers network have been strengthened by market mechanisms, namely by the commercialisation of products deriving from local varieties and breeds in local shops and in local agro-tourisms.

Finally, when considering the tourism sector, the success of the regulatory framework and of the policy interventions ensured by the LAG and MU is also due to market-driven mechanisms, namely the increased demand for agro-tourism and rural tourism that has been stimulated through specific actions and initiatives (for example by setting the *Consorzio Garfagnana Produce*).

**Table 4:** Enabling factors in selected projects/initiatives

Project/initiative	Main enabling factors
Collective action for the valorisation of niche products	<ul style="list-style-type: none"> <li>- Assistance and support provided by the <i>Mountain Community (MC)</i> for obtaining PDO, PGI and other certifications (i.e. slow food, label of guarantee for honey, etc.);</li> <li>- Coordination amongst local institutions and farmers associations and consortia (i.e. chestnut and beekeepers associations, products consortia);</li> <li>- Presence of <i>Garfagnana Coop</i>, a company which is also a farmers' organisation which processes and commercialises the majority of local agro-food products of the area.</li> </ul>
Conservation of local plants and breeds	<ul style="list-style-type: none"> <li>- Positive regulatory framework at the Regional level. The custodian grower project is part of a regional initiative regulated by the regional Law 64/2004, which provides different tools (including financial resources for local institutions and payments for local farmers) to protect and add value to the patrimony of local breeds and varieties;</li> <li>- Presence of <i>Centro la Piana</i>: a section of the regional Germoplasm bank is located in Garfagnana and the responsible of the centre is play a central role in motivating and involving local farmers;</li> <li>- Positive attitude of local farmers, the majority of them highly motivated towards the biodiversity conservation objectives (this small area concentrates almost the 30% of the total custodian growers at the regional level).</li> </ul>
Agro-tourism sector	<ul style="list-style-type: none"> <li>- Regional laws on agro-tourism (RL 30/2003; RL 80/2009; RL 4/2014) that in mountain areas facilitate the tourism activities</li> </ul>

	<p>also for small farms (agro-tourism is allowed only for professional farms but the predominance of agricultural activities is not so strict: several dispensations may be granted);</p> <ul style="list-style-type: none"> <li>- Availability of to RDP measures (diversification and investments);</li> <li>- Development of a specific Consortium (<i>Consorzio Garfagnana Produce – CGP</i>) which aims at supporting territorial marketing initiatives for agro-tourisms and local agro-food products (i.e. through websites, fairs and other initiatives).</li> </ul>
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### 3.4 Levels of provision, trends and determinants

As outlined above, the successful projects and initiatives described in the report are part of a broader local strategy implemented through a fruitful combination of policy and market mechanisms and by a collaboration between public and private actors.

This strategy strengthened the economic, social and environmental fabric of the territory and, above all, resulted in an increased provision of ESBOs at territorial level.

In the table 5 some data and trend relevant for biodiversity and landscape are provided.

**Table 5:** Biodiversity and landscape: data and trends

	Data and trends	Source
Crop varieties preserved by custodian growers	In situ conservation and cultivation of 29 ancient horticultural varieties and of 26 ancient fruit varieties (data 2016)	Interview n. 5
Custodians growers	33 custodian growers in 2016 and additional 19 farmers belonging to the custodian growers network (cultivating but not preserving the varieties)	Interview n. 5
(in situ) preserved Garfagnina Bianca (white Garfagnina sheep)	In 2003 only 70 heads of the white Garfagnina sheep were left. In 2014 800 heads were reared by a small network of farms	Camilli and Pieroni (2016)
(in situ) preserved Garfagnina beef	The number of heads dropped from 6,000 in 1956 to 400 in 1998. Actually there are almost 800 heads reared	Interviews n. 10 and n. 11
Chestnut wood	Strong decrease during the last 40 years (from 15,000 ha in 1978 to 3,000 ha in 2013) but in recent years the quota of cultivated and managed chestnut wood is increasing (from 300 ha in 2008 to 1,000 ha in 2013)	Interview n. 4
Spelt	In the '80s only 5-10 ha of the spelt form Garfagnana was cultivated (it was considered a variety at risk of extinction). In 2016: 200 ha of certified PGI spelt	Interview n. 12 and Qualivita (2012)
Grasslands and mountain pastures	The recent increase of traditional livestock system with Garfagnina Bianca sheep and Garfagnina beef has brought to a better preservation of grassland on farm land and of pasture at higher altitude. These breeds are	Interviews n. 2, n. 10 and n. 11

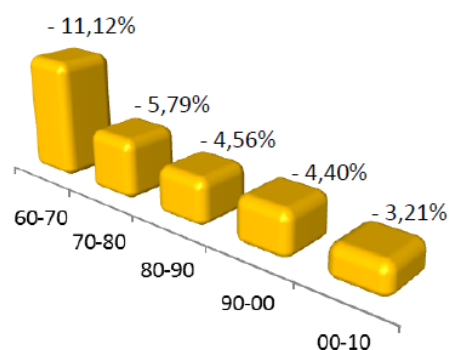


	mainly feed with local forage and hay, especially in the higher pastures, known as <i>alpeggi</i> , used primarily for grazing and which ensures pasture feeding for an average period of 100 days in summer. Unfortunately, there are not official figures on grasslands and mountain pastures recovered.	
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When looking at the rural vitality, due to the complexity of interrelated factors contributing to this multidimensional ESBO, it is possible to provide only selected information and data that, although indirectly, may capture the main socio-economic trends over the last decades.

At this regard the demographic trends are a very important information: official figures show that compared to strong depopulation trends experienced in the period from the '60s to the '90, during the last twenty years in Garfagnana the depopulation rate has strongly decreased.

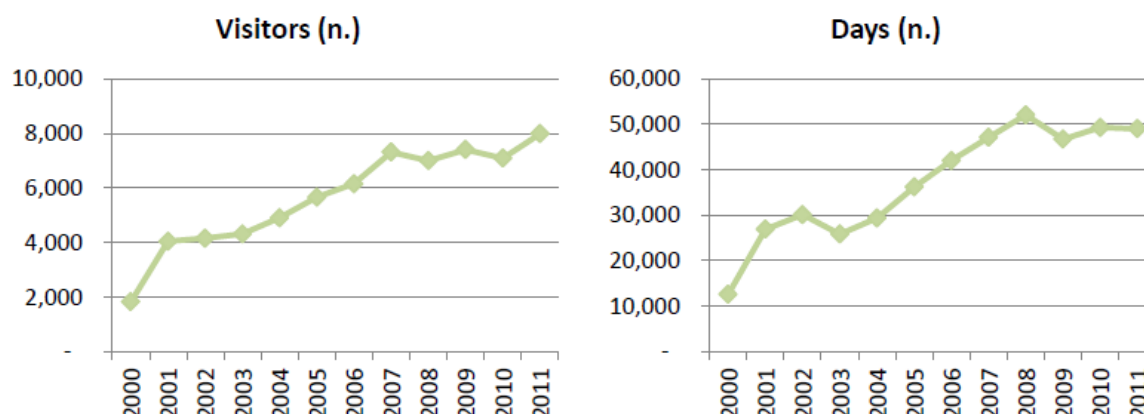
**Figure 7:** Depopulation rate in Garfagnana



Source: Istat

As already outlined in section 3.2, another important indicator of rural vitality is the agro-tourism sector, which has experienced a remarkable development during the last twenty years: in 1995 there were only 4 agro-tourisms, which became 20 in 1999. In 2016 there are 130 agro-tourisms, corresponding to over 1,200 beds and 8,000 guests per year, with an annual turnover of € M 4-5 (Interview n. 2).

**Figure 8:** Tourists in Garfagnana agro-tourisms



Source: IRPET

With regard to the contribution of niche and quality products, it may be argued that the quality certification obtained for several products (figure 8) and the related increased values of sales give a relevant contribution to the rural vitality of the area.

**Figure 9:** Certification and labels



As outlined by Camilli and Pieroni (2016), the heritage linked to traditional knowledge is an element characterising the local niche products and, above all, the strong identity of this rural areas can provide local production with an important added value, making them culturally relevant as well as more profitable and competitive in the market. As confirmed by several stakeholders interviewed (n. 1, n. 2 and n. 12), the quality certification for Spelt from Garfagnana (PGI) and chestnut flour (PDO) have been important drivers not only for the market development of these products, but also for the overall economic effects on the area. Indeed, since these productions are based on historical farming practices, strongly embedded on the social traditions and local landscapes, the success of these niche products have played an important role also from a social and environmental perspective, by preserving typical (rural) landscapes and by enhancing the tourism attractiveness of the area.

The main determinants of ESBOs provision are related not only to the availability of public support (primarily RDP) but also to market mechanisms stimulated by public institutions and

local associations/organisations, especially in the context of agro-tourism and niche products initiatives. The ESBOs provided by these initiatives are increasingly appreciated by the local community as well as by an increasing number of national and international tourists.

Nevertheless, when looking at the environmental benefits provided by the local farming system, it is possible also to identify a broad range of limiting factors (table 6). According to the stakeholders interviewed, these factors are relevant not only for the selected initiatives listed in table 4, but they can be considered as more general barriers for further valorisation of ESBOs through farming and forestry. According to the stakeholders interviewed the main limiting factor are the following ones:

- Lack of generational turnover in farming (the presence of new entrants in many cases is strictly related to the availability of RDP funding for a 5 years period);
- High presence of part-time and non-professional farms, which cannot have access to public policies and which cannot commercialise agri-food and forestry products (i.e. mushrooms, chestnuts, berries etc.);
- Difficult land market, with a very fragmented ownerships;
- Difficult accessibility and lack of transport and infrastructure;
- Inadequate technical assistance;
- Forest land use is increasing dominating the landscape, especially at higher altitudes, and this brings to a strong presence of ungulates (wolf, deer, boar) which are one of the main limiting factor for the expansion of farming activities and of open landscapes.

**Table 6:** ESBOs provision: determinants of improvement and limiting factors

ESBO	Determinants of improvement	Limiting factors
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>- Increasing demand for high quality and niche products</li> <li>- New entrants in agriculture, very keen to biodiversity issues (in many cases local young and motivated farmers)</li> </ul>	<ul style="list-style-type: none"> <li>- Dependence on public funding (i.e. payments for custodian growers in the framework of RL 64/2004)</li> <li>- Limited use of grassland and pastures</li> </ul>
<b>Landscape</b>	<ul style="list-style-type: none"> <li>- Presence of local agro-forestry cooperatives</li> <li>- Development of agro-tourism and of niche products</li> </ul>	<ul style="list-style-type: none"> <li>- Fragmented ownership, with small parcels of agricultural land available</li> <li>- Strong presence of ungulates (wolf, deer, boar) which hinder agricultural and livestock farming, especially at the higher altitudes</li> </ul>
<b>Rural vitality</b>	<ul style="list-style-type: none"> <li>- Availability of funding through targeted policies</li> <li>- Increasing presence of national and foreigner tourists</li> <li>- Large presence of cooperatives, associations and producers consortia</li> </ul>	<ul style="list-style-type: none"> <li>- Inadequate training and support (technical assistance) in farming and tourism sector</li> <li>- Lack of accessibility and transport for the most remote villages</li> </ul>

### 3.5 Relevant governance arrangements and institutional frameworks

As discussed above, the governance system in Garfagnana is characterised by a fruitful collaboration between public and private stakeholders and by a participatory and inclusive approach in defining policies and strategies. This system is deeply rooted on the cooperation between the two main actors, namely the MU and the LAG, which so far have ensured an effective policy integration at the local level. While the Municipalities Union (MU) was in charge of co-ordinating and implementing local strategies and policies, the LAG has become an important local development agency where a broad range of interests are represented.

The local strategies adopted are not only integrated with the activities of the local authorities in charge of implementing them, but they also aim at influencing the strategies of private actors and to align the vision of all the local stakeholders towards common objectives. Indeed, these authorities have different and complementary roles but share the vision on the development pathways for the area, with a strong emphasis on ESBOs provision. This is due to a combination of factors such as the presence of the same actors in different institutional settings, the closeness of actors and the shared political values.

The role of MU was inherited by the Mountain Community (MC), a local body which was suppressed in 2013. While during the first two years the MU maintained the role of managing rural and farming policies, in 2015 this role was transferred to the regional government. This choice was interpreted by local stakeholders as an attempt to re-centralisation of power and roles in the sector that could threaten the successful governance model in place, based on devolution of responsibility, involvement of local stakeholders in the decision making process as well as relation of trust and direct knowledge amongst public and private actors.

## 4 Conclusions derived from analysis in Steps 1 and 2

### 4.1 Key findings on the particular SES and its potentials

The analysis of this SES allowed exploring interesting mechanisms related to combination of different drivers needed to improve the quantity and quality of ESBOs through farming and forestry. The key findings may be summarised in the following points:

- The quality and quantity of each ESBO provided in Garfagnana is the result of a complex combination of policy and market drivers. While in this SES policy mechanisms play a central role, common goals and objectives were usually also achieved through the activation of market mechanisms. In many cases public policies and strategies stimulated local actors and the development of local networks, which could ensure the long-term provision of ESBOs through market mechanisms. The most relevant examples are: (i) the regulatory framework and the policy support for agro-tourisms, which enabled local actors to invest in the sector and (ii) the public support and the technical assistance ensured to conserve local varieties and breeds, finalised to create a market valorisation of products through niche markets;
- The mechanisms through which ESBOs are provided in Garfagnana are strongly linked to the features of the local farming system, not only in terms of farming structure and practices, but also in terms of rural traditions, cultural heritage, sense of belonging to

the rural community, cultural and social habits. Indeed, all the action situations identified in the case study are aimed at reinforcing the “rural identity” through the development of a broad range of farming and forestry activities such as on farm diversification (mainly agro-tourism), land management, biodiversity conservation and the market valorisation of (agro-food) traditional products;

- The selected ESBOs are strongly interconnected and may be considered different components of the same system. The environmental resources of the area (especially landscape and biodiversity) are the results of farming and cultural practices conserved during the centuries. The recent successful strategies implemented aimed to mobilise (material and immaterial) resources amongst local actors with the objective of rebuilding knowledge and to re-introduce traditional practices. The specific policy and market instruments adopted for environmental and economic benefits ended up with positive effects in terms of rural vitality.

## 4.2 Governance arrangements and institutional frameworks

The ESBOs provision in Garfagnana is strongly related to a well-structured system of local governance that allowed to experiment a successful strategy based on enhancing and valorising the local cultural identity through farming and forestry activities.

It is possible to identify two main drivers which have been very relevant for the successful development of the area in terms of social and environmental sustainability (and consequently in terms of ESBOs provision).

The first one was the increasing empowerment of local actors and particularly of “Mountain Community” (MC), a local government body which became a key institutional actor able to implement and coordinate effective actions at territorial level (in all 16 municipalities of the area). This process of empowerment of MC ended up with the design and implementation of the first SEDP - socio-economic development plan (Comunità Montana della Garfagnana, 2000), which assigned to this local institution the role of coordinating actions and resources not only on the farming and forestry sectors, but also in other sectors (i.e. tourism and education services, infrastructure, etc.). This can be considered a strategic solution which has enabled the development of an integrated vision of the territorial development, focused on developing more diversified and multifunctional farming, but also on strengthening the inter-sector linkage and on enhancing the role of private actors (interview n. 1).

The second factor, which has also strengthened the approach undertaken in the SEDP, is related to the increasingly availability of EU funding (both structural funds and rural development funds) in most remote and marginal areas. Moreover, the related policies increasingly focused on local, bottom up and inclusive strategies. In greater details, in the early ‘90s Garfagnana was included amongst the areas eligible for assistance under Objective 5b of Reg. EC 2052/88 and the LAG Garfagnana was one of the two LAGs created to experiment the LEADER approach at the regional level. This can be recognised as another important turning point that development of the area.

Garfagnana is now recognised as a very successful example of local endogenous development based on farming and forestry resources which have increased also the economic and social vitality of the area. This important result was due not just to the two factors listed above, but rather to the complementarities and integration of these two factors (interviews n. 1, 2, 3 and





4). Indeed, since the '90 the local governance system in the area has been shaped by these two actors - the MC (now called municipalities Union – MU) and the LAG - which have developed complementary and well targeted policies through a shared agenda. The policy papers that have defined the local LAG's development strategy (2000-2006 and 2007-2013) and the SEDP (2001-2005 and 2006-2010) are characterised by a common languages and objectives. The same contents could be also found in the Local Rural Development Programme (LRDP) 2007-2011, implemented at provincial level (Romano and Tudini, 2014).

### 4.3 Reflections on the case study methodology used and potential improvements

Data were collected through literature review/secondary data analysis and semi-structured interviews with local stakeholders. Interviewees were selected through snowball sampling process. The semi-structured interviews were a very useful tool to improve the understanding of the local SES system and to explore the main mechanisms of ESBOs provision.

With regard to the general approach of the case study, although the SES may be an useful framework to compare a large number of cases, this case study highlights some limitations of its use in the context of PEGASUS project:

- This framework seems more useful to describe and analyse case studies focusing on specific conflicts due to a common-pools resource problem. While very localised problems, involving only one issue (or one ESBO) and/or a collective action problem seem easily covered by this approach, its application seems more difficult when using a broader perspective such as in this case (several sectors and policies involved, together with several mechanisms and initiatives to be addressed).
- In the literature the SES framework is mainly used to case studies located in developing countries, where local communities deal with the public goods/CPR problem through informal and collective solution, due to the lack of formal arrangements and official policies. In the EU context the presence of specific policies targeted to public goods provision through agriculture may influence to a large extent the selection and analysis of the governance systems as well as the identification of the related action situations.
- The list of variables provided seemed not so relevant in discussing the local SES, also because the case study template has not specific references to the different SES sub-systems and components (the template focuses mainly on governance arrangements rather than on resource units, actors and action situations).

Additional methodological reflections are related to the specific features of the Garfagnana case study:

- Due the nature of this case study, the building of rural identity was selected as a broad action situation. At the same time, this action situation is composed by a combination of several socio-economic dynamics (which could have been considered as action situations themselves) that was not possible to describe in greater details. A more in depth analysis of selected initiatives should be provided in order to have a more comprehensive analysis of most relevant mechanisms for ESBOs provision.
- In order to understand the key motivational, institutional and socio-economic factors which enable transformative practices, as well as to identify the main action situations,

in this case study it seemed very useful to provide a short overview of the historical evolution of the SES.

- Rural vitality is a very complex ESBOs to be analysed, due to its multidimensional nature and its relation with other socio economic features of the area. A more exhaustive analysis of this ESBO should rely on a specific and theoretical framework as well as on the selection of specific variables.

## 5 Research and action mandate for Steps 3 and 4

### 5.1 Agreed objectives of activities to be undertaken with initiative/stakeholders

The majority of stakeholders demonstrated a strong motivation in working together and had several ideas for the future. At the same time during the last two years the area has experienced a deep change in the institutional and political framework (centralisation of some functions and policies to the regional government, political elections, generational turnover of important local representative, change of officials etc.) and this will involve a big challenge for the local system. Some stakeholders are afraid that these changes would affect negatively the local system and they recognise in PEGASUS a relevant opportunity to share some ideas and to discuss jointly the future directions of the local system as well as to define new strategies and policy for the overall development of local farming and forestry. Although the case study was not selected for steps 3 and 4, interviewed are very interested in receiving updates of PEGASUS project, which is considered a good opportunity to share different ideas and visions regarding the overall development of the area. Under the request of several stakeholders interviewed, a local workshop will be organised to discuss the challenges of maintaining and possible enhancing the ESBOs provision with new mechanisms and initiatives in an evolving institutional and policy context.

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## 7 ANNEX

### 7.1 Documentation of research and action progress

#### *The most relevant variables considered in the case study*

Type of variable	Short description
<b>Social, economic, and political settings (S)</b>	
S1 – Economic development	Remoteness but positive economic trends
S2 – Demographic trends	Reduction of emigration
S4 – Other governance systems	Collective consensus
S5 – Markets	Demand for quality and local products
<b>Resource systems (RS)</b>	
RS1 – Sector	Agriculture, forestry and tourism
RS2 – Clarity of system boundaries	Boundaries amongst sectors not well defined
RS5 – Productivity of system	Economic viability of farming diversification
RS9 – Location	High importance of the RS location (identity)
<b>Governance systems (GS)</b>	
GS1 – Government organizations	Local institutions very influential in shaping directions and outcomes of policies
GS2 – Nongovernment organizations	Consortia and producers organisations
GS3 – Network structure	Presence of several networks, with catalysts and leaders
GS5 – Operational-choice rules	Differentiated operational-choice rules
GS6 – Collective-choice rules	Inclusive choice for several projects/initiatives and products
GS7 – Constitutional-choice rules	Local networks promoted by local institutions and managed by private organisations
<b>Resource units (RU)</b>	
RU3 – Interaction among resource units	Strong interactions amongst the selected ESBOs
RU4 – Economic value	Increasing recognition of the economic value of the key ESBOs
RU6 – Distinctive characteristics	High integration amongst social and environmental dimensions and ESBOs
<b>Actors (A)</b>	
A1 – Number of relevant actors	Broad range of public and private stakeholders
A2 – Socioeconomic attributes	Strong identity, local culture and traditions
A3 – History or past experiences:	Strong link between the key ESBOs and the historic use of the resource units
A6 – Norms (trust-reciprocity)/social capital	High level of trust between institutions, stakeholders, rural communities and farmers
A7 – Knowledge of SES/mental models: R	Awareness, knowledge and appreciation, motivation and engagement of local actors
A8 – Importance of resource (dependence)	Strong dependence from the selected ESBOs
<b>Action situations: Interactions (I) → Outcomes (O)</b>	

13 – Deliberation processes:	Key role of policies for the selected ESBOs and the interaction amongst private and public institutions
15 – Investment activities	Relevant investment takes concerning rural vitality (i.e. agri-tourism), key role of local institutions
17 – Self-organizing activities	Local empowerment and engagement
18 – Networking activities	Interlinks amongst actors concerning the key ESBOs addressed
O1 – Social performance measures	Socio-economic figures for rural vitality and some (unofficial) data for other ESBOs
O2 – Ecological performance measures	Areas of land cultivated with local products, areas with chestnut trees, number of varieties and conserved animals and plants
<b>Related ecosystems (ECO)</b>	
ECO3 – Flows into and out of focal SES	Selected ESBOs highly interconnected; interconnections well known and valued

### List of interviews

N.	Name	Institution/organisation	Role	Place	Date
1	Stefano Stranieri	LAG	Former director	Lucca	27 May 2016
2	Sandro Pieroni	MU	Responsible Agriculture and forestry office	Firenze	06 June 2016
3	Paolo Fantoni	MU	Former president	Castelnuovo Garfagnana	07 June 2016
4	Ivo Poli	Associazione Città del Castagno	President	Castelnuovo Garfagnana	07 June 2016
5	Fabiana Fiorani	Bank of Germoplasm and project "custodian growers"	Director/responsible	Camporgiano	07 June 2016
6	Michele Pieretti	Local farmer	Custodian grower	Bosco di Villa	08 June 2016
7	Franca Bernardi	Local farmer	Custodian grower	Castiglione Garfagnana	08 June 2016
8	Elio Bechelli	Associazione Api Garfagnana	President	Sillicagnana	08 June 2016
9	Rino Manetti	Cooperativa agricolo forestale "Pania di Corfino"	Director	Corfino	09 June 2016
10	Carlo Filippi	Associazione Vacca Garfagnina	Farmer	Castiglione Garfagnana	09 June 2016
11	Francesco Rossi	Local farmer	Preservation of Garfagnina beef	Valbona	09 June 2016
12	Lorenzo Satti	Garfagnana Coop/Consorzio Garfagnana Produce	Director	Sillicagnana	10 June 2016

### Relationships between ESBOs and farming

ESBO	Short description	Role of farming	Selected initiatives/projects
<b>Biodiversity</b>			- Project custodian growers





	- Maintenance/increase in abundance of biodiversity on farm and forest land	Maintenance of high level of crop and livestock genetic diversity	- <i>In situ</i> conservation of traditional breeds ("Garfagnina" beef and sheep)
<b>Landscape character and cultural heritage</b>	- Maintenance of ecological infrastructure that contributes to the character of rural landscape	Maintenance of landscape features and landscape mosaic	- Landscape management activities carried out by small farms and agri-environmental cooperatives
	- Maintenance of heterogeneous and locally distinctive cultural, archaeological and built heritage	Maintenance and use of traditional rural buildings	- The chestnut drying to make the typical floor takes place in the "metato", a rural building set up in the harvest place
<b>Rural vitality</b>	- High levels of social capital, trust and cooperation between people	Cooperation and collective initiatives to produce and promote local products	- Presence of associations, organisations and consortia linked to agriculture and forestry (i.e., Association Chestnut, ASBUC, Consortium Garfagnana Produce, Garfagnana Coop, etc.)
	- Embodying, maintaining and sustaining rich cultural practices, knowledge and traditions - Sense of 'place' and 'territoire'	Local agri-food products (i.e., spelt and chestnut flour, honey) contribute to the sense of 'place' and 'terroire'	Certified products: IGP Farro della Garfagnana (Spelt from Garfagnana) and POD Farina di Neccio (chestnut flour)