

Chapter 6

Mobility and Migration in Mediterranean Europe: The Case of Agro-pastoralism



While most of the existing literature on rural migrations focuses on immigrant workers in intensive agricultural systems, this work tries filling existing gaps by addressing more marginal and remote rural settings. The mountainous, inner and island territories that cover a large part of the Mediterranean are particularly affected by intense demographic decline, land abandonment and problems of generational renewal, posing important questions concerning the sustainability of local development.

The agro-pastoral systems that characterize these settings provide a relevant observatory to explore and disentangle rural migratory dynamics. In these areas the presence of immigrant shepherds represents a critical asset to maintain local farms, villages and territories alive and productive. By analysing the reconfiguration of human and natural landscapes in agro-pastoral systems of Greece, Spain and Italy, we provide a framework to assess the contribution of immigrants in maintaining and reproducing European rural societies.

6.1 Introduction

With a view to disentangle the contributions of immigrant communities to rural development, in this chapter we assess in deeper detail the relevance of foreign workers in agro-pastoralism.

Historically, agro-pastoralism – the extensive breeding of mostly sheep, goats and cattle associated to farming activities – is a traditional form of territorial management in marginal area of Mediterranean Europe. It provides valuable products and precious socio-ecosystem services, which are an integral part of food production and natural resource systems.

Shepherding, its practices and symbols are a traditional feature of all Mediterranean cultures; transhumance routes cut across EUMed territories creating synergies and enhancing economic integration; the wool economy has been a main driver of

regional development for centuries. Animal proteins in the form of meat and milk products have become more relevant in recent decades, associated to several ecosystem services that are being increasingly acknowledged; most natural parks and reserves in the region are superimposed with historical agro-pastoral settings.

Agro-pastoralism is central especially in marginal rural settings, which constitute about half of the Mediterranean territories. Such territories are associated with lower income and employment opportunities, as well as with limited access to social, cultural and institutional services, pushing younger generations to move away in search of better options. Intense demographic decline, land abandonment and generational renewal represent important questions for the future of sustainable rural development.

Paradoxically, as it will be discussed, agro-pastoralism is increasingly appreciated by the European society for its products and services even though it is decreasingly practiced by its citizens. This paradox is currently resolved through the growing presence and contribution of immigrant shepherds. As farm labour intensifies and socio-economic conditions have hardly improved, foreign workers have become strategic for the survival of agro-pastoral enterprises, and for the marginal and depopulated territories.

By analysing the reconfiguration of human and natural landscapes in the agro-pastoral systems of Spain, Greece and Italy, we provide a framework to assess the contribution of immigrants in maintaining and reproducing European rural societies. Data, estimates and sources are specifically for sheep and goat farming, and for markets related to ewe's milk and sheep cheese, as these are typically associated to agro-pastoral systems in the region.

6.2 Contemporary Changes in Mediterranean EU Agro-pastoralism

To understand the increasing role of immigrant workers in agro-pastoralism, it is necessary to introduce the characteristics of agro-pastoral systems and their recent changes and dynamics.

Historically, Mediterranean rural settings are characterised by agro-pastoral systems. Due to the climatic and territorial features of the region, Mediterranean agricultural systems were typically extensive and oriented to self-consumption, multifunctionality and polyculture; these consist of cereals such as wheat and barley, while vineyards, olive and other fruit trees are part of the countryside, especially where the steepest terrain makes it difficult to farming cereals. Associated to these crops, the extensive breeding of mostly sheep, goats and cattle represents a typical complementary component of local rural livelihoods (Campbell 1964; Pernet and Lenclud 1977; Le Lannou 1979; Ravis-Giordani 1983; Meloni 1984; Mattone and Simbula 2011).



Fig. 6.1 Areas of main transhumant systems in the Mediterranean. (Source: Own elaboration from Braudel (1982))

Box: Mediterranean Transhumances

In the Mediterranean, breeding sheep and goats is often associated with the practice of transhumance, the seasonal mobility of flocks, which makes it possible to adapt flocks' productive and reproductive performances to the rhythm of the seasons and the availability of pasture – cooler inner, mountain pastures during the summer and milder coastal areas or valley bottoms in winter times. In complementarity with sedentary agricultural activities, this system enables making the best use of the agro-ecological diversity and of the marked seasonality of the region. Transhumance has been instrumental for the management and the governance of extended territories. For example, the Mesta systems in Spain, and the Dogana in Italy served the lucrative trade of wool, while also contributing to integrating territories, economies and cultures (Braudel 1982 – also refer to Fig. 6.1). During the last century, these systems began to fade due to important changes in global economy, regional trade and local land use through the diversification of fibre markets. As it can be guessed living and working conditions associated to this practice are quite hard and require high degrees of rusticity and commitment.

Agro-pastoral systems are based on specific agricultural practice whereby animals are mostly raised in open settings, mostly feeding on local natural grazing; several interactions and synergies characterise the combination of farming and livestock systems.

Agro-pastoralism has proved to be an effective land use for the mountains, drylands, and islands that cover approximately half of the Euro-Mediterranean region. As a main source of food, employment and income it has represented a resilient livelihood system in these marginal territories where the costs for land and labour make this a convenient option compared to other forms of land use, while also playing a critical role in the management of the local rich but fragile natural resource base.

Agro-pastoralism is in fact considered a High Nature Value (HNV) practice, and it is as such increasingly appreciated for the so-called socio-ecosystem services (SES) it provides to the wider society, as it associates quality production with socio-economic opportunities and natural resource protection (Caballero et al. 2009; Nori 2015; Meloni and Farinella 2015a, b; IFAD 2017).

Box: The Socio-Ecosystem Services of Agro-pastoralism

Pastoralism contributes to the provision of ecosystem services, as it plays a relevant role in maintaining biodiversity. Apart from flora species, agro-pastoral farmers also contribute to the protection of diversity by rearing autochthonous animal breeds, supporting wildlife habitats and contributing to preserving landscapes. In addition, agro-pastoralism enhances the resilience to hydro-geological risks and natural hazards. Well-grazed vegetation represents an important factor to control erosion, flooding and landslides, as well as a barrier to the spread of forest fires, while enhancing the maintenance of biodiversity and soil quality and reduces the fire risk in permanent crops such as olive groves. The capacities of properly managed pasturelands to absorb carbon and water provide as well a most effective way to store CO₂ and to manage rainfall, two ecosystem functions that are increasingly important in a climate perspective (Caballero et al. 2009; Nori and de Marchi 2015; Moreira et al. 2016; Ragkos and Nori 2016).

Apart from economic and ecological aspects, agro-pastoralism in the Mediterranean plays an important socio-cultural and political role as well. By supporting local livelihoods it ensures human presence is maintained in harsh terrains and remote communities, thus contributing to averting socio-economic desertification, with relevant implications on the cultural heritage and territorial identity of local communities. This applies specifically in mountainous areas, ‘Europe’s ecological backbone’, as much as in most EUMed islands, such as Sardinia, Crete, Majorca, Corsica, Peg, Cyprus, etc. Table 6.1 reports on the relevance of agro-pastoralism for the economy and society of Sardinia and Crete.

Although with many differentiations and local characterisations, the embeddedness of agro-pastoralism in local territories and societies contributed in time to shape and maintain the extraordinary cultural and biological diversity that characterizes the Mediterranean countryside, an “historical rural landscapes”

Table 6.1 Main features of agro-pastoral systems in Crete and Sardinia (year 2016)

Crete		Sardinia
0.630 Mils	<i>Human population</i>	1.663 Mils
1,1 Mils	<i>Sheep population</i>	3.15 Mils
4.800	<i>Sheep farms</i>	11.213
229	<i>Average size – heads/flock</i>	280
13% flocks	<i>Transhumance</i>	Few hundreds
Autochthonous breeds	<i>Breed</i>	Autochthonous Sarda breed
Multifunctional	<i>Production focus</i>	Mainly Pecorino Romano cheese
25% at local <i>mitata</i> level	<i>Dairy processing</i>	Mostly through industries
Mostly through cooperatives	<i>Marketing</i>	32 coops exist – but mostly controlled by the industry
4 PDOs	<i>Cheese market certification</i>	3 PDOs
30%, mostly from Albania, Bulgaria	<i>Proportion of immigrants amongst salaried shepherds</i>	20% mostly from Romania

Source: Nori et al. (2017)

(Antrop 1997, 2005; Agnoletti 2013). The complex articulation between pastoral resource management and natural ecosystems is well reflected in Mediterranean landscapes of high natural and cultural value such as the Causses and Cévennes, Dolomites, Picos de Europa, Parco Nazionale degli Abruzzi, Atlas mountains, etc... These offer important opportunities for leisure as well as for tourism development in these regions.

Box: Capitalising on Agro-pastoral Traditions

A series of projects and initiatives have been launched to enhance pastoral cultures and contribute to their capitalization; these include the Virtual Museum of Transumanzia in Slovenia, the Museum of Transhumancia in Guadalajara and in Aigüestortes in Spain, la Maison du Berger in Provence, the Ecomuseum della Pastorizia in Val Stura and in Sardinia, and other Transhumance musea in the Abruzzi and Molise. The French park of Causses et Cévennes has been acknowledge by UNESCO as a world heritage for Mediterranean agro-pastoral cultural landscape, specifically characterised by pastoral resource management through extensive animal keeping.

These contributions of agro-pastoralism to sustainable societal development are recognized and supported by the Common Agricultural Policy (CAP). CAP plays today a significant role in the budget of agro-pastoral farms. On average CAP financial support might represent today half of the EU Med breeders' annual revenue, with trends and variations changing from a country to another depending on local legislations and implementation of CAP schemes (Nori 2015; Fréve 2014; Ragkos et al. 2016b).

It is usual to hear amongst agro-pastoral farmers that “we spend today more time in the office than in the field”, or to read that “we are considered as landscape gardeners rather than producers of meat and milk” (Nori 2017b: 14) these financial contributions represent a critical resource for this sector (also refer to Brisebarre 2007; Nadal et al. 2010; Pitzalis and Zerilli 2013; Nori 2015). Without this support, sheep, goats and cattle would have already disappeared from most landscapes.

Box: The CAP vis-à-vis Agro-pastoralism

The recent reforms of the Common Agricultural Policy (CAP) have shifted the focus of public support and rural welfare towards a multifunctional vision of agriculture. In such context agro-pastoralists are increasingly demanded to play their role in managing natural resources and maintaining landscapes, while also contributing to stabilize population and to enhance socio-economic development in marginal settings (Nori and Gemini 2011; Beaufoy and Ruiz-Mirazo 2013). Following changing societal demands, CAP policy support has shifted through time from conceiving agro-pastoralists as mostly livestock producers to ‘guardians of nature’ or suppliers of multifunctional goods and socio-ecosystem services (Marsden 1995; McNally 2001; Vaccaro and Beltran 2007; López-i-Gelat 2013).

The role of the European Union and its CAP remains though contradictory and controversial. The ways CAP addresses the specific problems and needs of agro-pastoralists is not deemed adequate, as for several factors they fall within the same criteria with conventional intensive systems, or not recognised in their diversity – such as for grazing systems in forest areas not accepted for agro-ecological payments; or for the local processing of dairy products, which may at times not comply with European legislations regarding quality standards (e.g. cheese from raw milk), thus hindering the expansion of informal marketing networks and affecting their economic viability (Farinella et al. 2017; Farinella 2018).

Although this public policy is essential to keep these territories populated and productive, the constant decrease in agro-pastoral farms and operators seems to attest that CAP schemes do not seem to be an adequate guarantee for the permanence and the reproduction of these systems.

In this sense, as we will see, the use of low-cost migrant labor is often applied as a strategy to cut down on production costs to tackle the agricultural squeeze.

6.3 The Recent Dynamics of Agro-pastoralism in Greece, Spain and Italy

In the traditional agro-pastoral system the family has typically represented the pillar of farm management, with work organized according to gender and age and aimed at the production and reproduction of the household as well as of the herd. Within a domestic household economy traditional agro-pastoral system is naturally multifunctional in providing a variety of products and services.

As explained in chapter two for the wider agrarian world, the traditional agro-pastoral model has undergone intense restructuring and reconfiguration in recent decades. Agricultural modernization has led to the expansion of monoculture in lowland areas and the abandonment of several inner and marginal rural settings, less suitable for intensive agriculture. Changes in commercial practices, agricultural policies, societal attitudes and consumption habits have all contributed to transforming not only the agricultural economy, but rural society as a whole. Today most of the livestock products demanded by consumers are increasingly supplied by more intensive production systems, while typical pastoral products such as lambs, ewes' milk and goat cheeses are sourced through imports from other regions (Kerven and Behnke 2011).

EUMed countries (including Portugal and Mediterranean France) hosted in 2015, 39% and 67% of the EU-28 sheep and goat population respectively; these were also the highest producers of ewe's milk: first Greece (30.5% of total milk production in EU); Spain second (27.1%), and Italy third (21.3%) (ISMEA 2017). The sheep milk sector will be analysed through the following tables to assess the changes these systems have undergone in recent decades (Figs. 6.2–6.5).

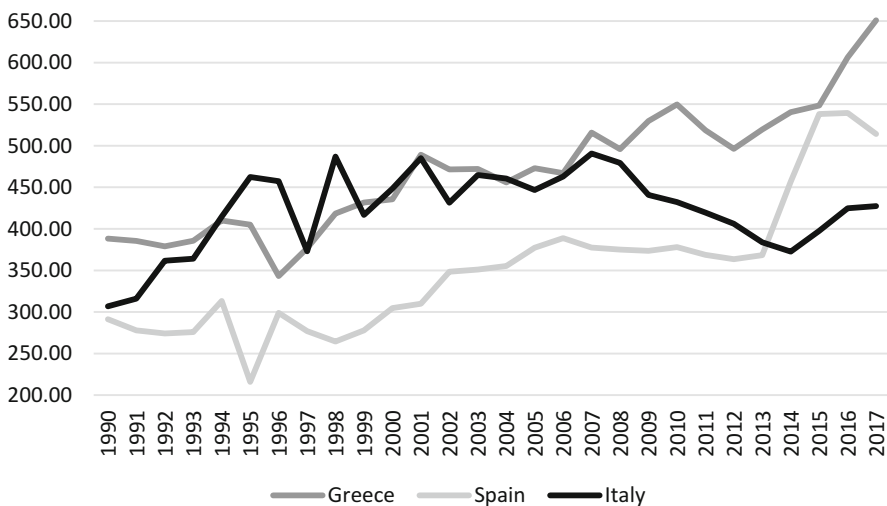


Fig. 6.2 Trend of sheep milk delivered to dairies in Greece, Spain and Italy. Products obtained (1000 t), years 1990–2017. (Source: Our elaboration on EuroStat data)

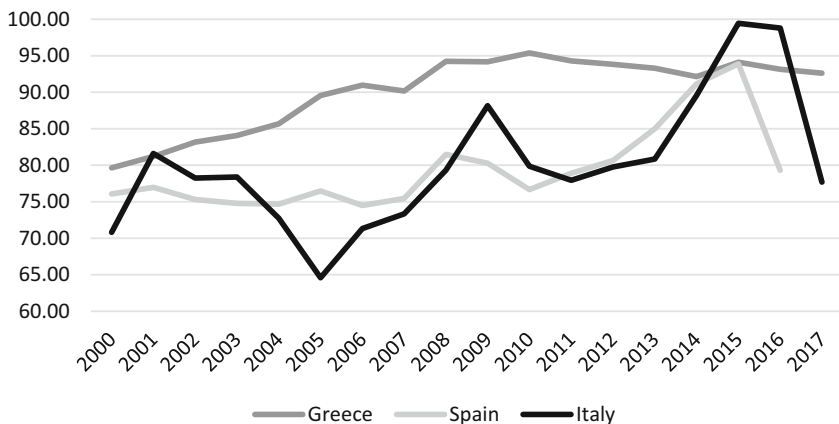


Fig. 6.3 Trends for sheep milk price in Greece, Spain and Italy – (€/Kg), years 2000–2017. (Source: Our elaboration on EuroStat data for Greece and Spain, ISMEA for Italy)

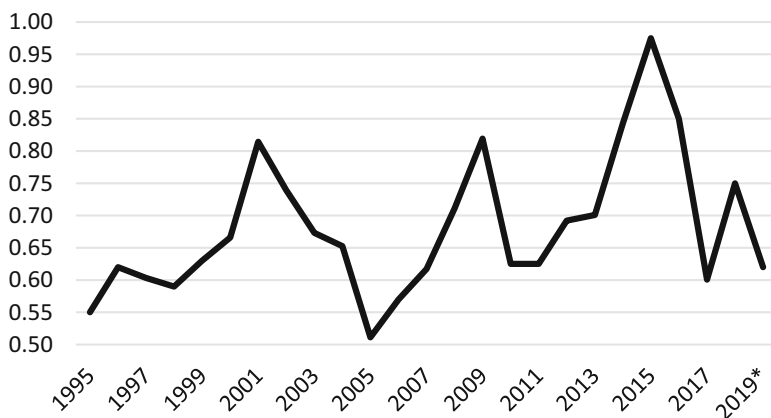


Fig. 6.4 Volatility of the price of sheep milk in Sardinia (€/liter). (Source: Our elaboration on ISMEA data)

The sheep-milk is processed in dairy industries to produce popular cheeses such as the Italian “Pecorino Romano”, the Greek “Feta” and the Spanish “Manchego”. The fact that these agro-pastoral products are mainly targeted to international markets and within large global food distribution chains represents a factor of economic vulnerability, as global commodities are exposed to high price volatility which affects many agro-pastoral farms (see Fig. 6.3).

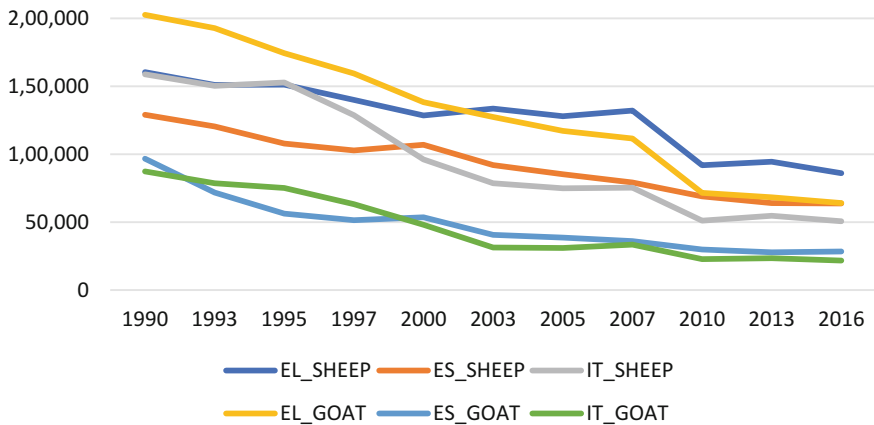


Fig. 6.5 Trends in sheep and goat farms in Greece, Spain and Italy (years 1990–2016). (Map legend: *EL* Greece, *ES* Spain, *IT* Italy. Source: Our elaboration on EuroStat data)

Box: Sardinian Agro-pastoralists Hanging on Global Value-Chains (Farinella 2018, 2019a)

Sardinia is an Italian region highly specialized in a sheep-breeding that is largely dependent on international markets. According to Istat data, in 2016 Sardinia holds 45.5% of the national sheep flock (3.3 million sheep) and produces 68.4% of Italian ewe milk production (2.9 million liters). With the highest ageing index and the lowest birth rate in the world, Sardinia is a region with a depressive demographic dynamic. In 2013, out of a total of 30,260 sheep farmers, over a third were aged above 60 and over 50% were older than 50, while only 5% were aged less than 30 years (Farinella et al. 2017).

Sardinian agro-pastoralism remains semi-extensive, though it is heavily embedded in the “Pecorino Romano” (PR) dairy value chain, a low value-added commodity based on large-scale production for export to the global market, mainly in the U.S.A. (which imports about 80% of the total PR production) where it is used as “mixed cheese” to improve the taste of industrial food. This makes Sardinian farmers largely dependent on the price of sheep milk, determined in turn by the value of PR in the global market. The PR supply chain is organized in an oligopolistic fashion, with the large processing industries and large-scale distribution brands controlling its sales and imposing the milk purchase price on sheep farmers. Strong fluctuations in the price of sheep milk can be observed, with a periodic and increasingly close frequency of price spikes, which trigger Sardinian livestock farmers to increase the levels of farm exploitation. It is within this vicious circle, that the costs of the market are dumped on the weakest links in the chain.

In 2015, the price of sheep raw milk was around 1 €/liter in Sardinia; since 2016 onwards it has gone through important fluctuations, with peaks of 0.60–0.50 €/liter, which eventually pushed Sardinian sheep farmers into unusual forms of protest in february 2019 (when the milk price is lowered to 0,60 €/liter), such as the pouring of milk on the streets (Simula 2019; Farinella 2019b). The Sardinian case is emblematic of the difficulties faced by farmers in global agri-food chain, which they often participate from a subordinate position.

Table 6.2 The consistency of the sheep sector in EUMed countries

Country	Sheep farms ^a (2016)	Sheep flock ^b (2016)	Ewes' milk – products (Kt) ^a (2017)	% meat ^b production (2010)	% milk ^b production (2010)
Greece	86.030	8.227.630	427.43	15%	85%
Spain	63.730	15.862.160	514.20	82%	18%
Italy	50.650	7.026.540	650.90	35%	65%
EUMed	200.410	31.116.330			

Sources: ^aEuroStat, ^bISTAT, INE, Magrama

Due to these pressures from the institutional and market spheres, the costs related to increasing animal productivity have arisen consistently in latest decades. Further dependence on genetics, agronomic and veterinary sciences as well as through the increasing reliance on market-supplied inputs and intensified animal feed production have also amplified input costs (Farinella 2018, 2019a). However, most agro-pastoral practices continue to rely on physical labour and manual activity, which is poorly mechanized, and with low productivity compared to other agricultural systems. Productivity rates have often increased more slowly than production costs, which has contributed to increasingly squeeze the sector viability; many farmers have been either forced to close or to deeply restructure their farm, by expanding their herd and re-organising land and labour resources accordingly as a way to adjust cost-benefit ratios (Hadjigeorgiou 2011; Farinella and Meloni 2013; Mattalia et al. 2018; Farinella 2018, 2019a; Theodoridis and Ragkos 2018).

The exploitation of immigrant workers represents for these farms a strategy to contain costs and it is often accompanied by the self-exploitation of the farmers' OWN family work. Different from crop-oriented farms, agro-pastoralists work closely with their labourers and carry out tasks together, with more horizontal and less hierarchical relationships.

The restructuring of the sector following these dynamics has profoundly changed the size of agro-pastoral enterprises and the nature of livestock management. Today there is a marked separation between the managerial and the field work; on the one hand the burdensome administrative components to be compliant with technical requirements and financial assistance, and on the other hand the tending of the livestock.

The classic refrain amongst agro-pastoralists is that “20 years ago with a flock half size of the present one we had a decent life and we could even make savings and investments. Now with a double-sized flock, it is difficult to make ends meet by the end of the year” (Nori 2017b:12). Official data seem to confirm this perception (refer to Tables 6.3, 6.4, 6.5, and 6.6 and to Figs. 6.5, 6.6, 6.7, and 6.8). The amount of agro-pastoral farms and flocks have decreased (Table 6.3), while the size of those remaining in the business has expanded (Tables 6.4 and 6.6). The decline in agro-pastoral farms accompanies the marked overall reduction of about 30% of the EUMed small ruminants' flock in recent decades (FAO database; EuroStat 2016).

Table 6.3 Variations of sheep and goat farming data and rates in Greece (years 1990–2016)

Greece	1990	1995	2000	2005	2010	2016	% var. 1990–2016	% var. 2000–16
Farms with livestock			392.960	407.510	273.160	238.520		-39.3
Sheep farms	160.420	151.220	128.550	127.940	91.930	86.030	-46.4	-33.1
Sheep flock	8.258.130	8.328.130	8.752.670	9.066.370	9.156.820	8.227.630	-0.4	-6.0
Sheep/farm rate	51.5	55.1	68.1	70.9	99.6	95.6		
Goat farms	202.610	174.380	138.250	117.170	71.590	64.050	-68.4	-53.7
Goat flock	5.176.470	5.009.060	5.327.200	4.822.000	4.213.230	3.541.680	-31.6	-33.5
Goat/farm rate	25.5	28.7	38.5	41.2	58.9	55.3		
Grazed pasture (Ha)	657.940	583.850	605.280	824.250	2.450.240	1.859.250	182.6	207.2

Source: Our elaboration on EuroStat data

Table 6.4 Variations of sheep and goat farming data and rates in Spain (years 1990–2016)

Spain	1990	1995	2000	2005	2010	2016	% var. 1990–2016	% var. 2000–16
Farms with livestock			414.000	325.150	245.160	216.700		-47.7
Sheep farms	129,030	107,870	107,000	85,250	68,980	63,730	-55.7	-40.4
Sheep flock	17,500.850	19,019.300	20,926.770	19,660.060	16,574.220	15,862.160	-10.3	-24.2
Sheep/farm rate	135.6	176.3	195.6	230.6	240.3	248.9		
Goat farms	96,710	56,290	53,590	38,650	29,860	28,420	-70.6	-47.0
Goat flock	2,497,000	2,152,510	2,724,630	2,527,300	2,363,520	2,490,680	-0.3	-8.6
Goat/farm rate	25.8	38.2	50.8	65.4	79.2	87.6		
Grazed pasture (Ha)	8,448,400	8,199,100	9,368,390	8,653,210	8,377,390	7,615,990	-10.8	-18.7

Source: Our elaboration on EuroStat data

Table 6.5 Variations of sheep and goat farming data and rates in Italy (years 1990–2016)

Italy	1990	1995	2000	2005	2010	2016	% var. 1990–2016	% var. 2000–16
Farms with livestock								
Sheep farms	158.810	152.830	96.150	74.880	51.100	50.650	-74.9	-47.3
Sheep flock	8.721.620	10.667.970	6.808.330	6.991.140	6.782.180	7.026.540	-21.4	3.2
Sheep/farm rate	54.9	69.8	70.8	93.4	132.7	138.7		
Goat farms	87.330	75.190	48.070	30.960	22.760	21.710	-75.1	-54.8
Goat flock	1.246.520	1.372.940	922.660	917.850	861.940	982.000	-21.2	6.4
Goat/farm rate	14.3	18.3	19.2	29.6	37.9	45.2		
Grazed pasture (Ha)	4.106.080	3.758.220	3.418.080	3.346.950	3.434.070	3.233.230	-23.4	-5.4

Source: Our elaboration on EuroStat and Istat data

Table 6.6 Utilised agricultural area and permanent grassland in Italy, 2016

	Utilised agricultural area UAA (Ha)	Permanent grassland (Ha)	Permanent grass-land/ UAA (%)
Italy	1.143.960	319.690	27.9
North West	102.000	46.770	45.9
North East	177.730	49.850	28.0
Central Italy	178.460	52.000	29.1
Southern Italy	483.960	89.990	18.6
Islands	201.820	81.100	40.2

Source: Our elaboration on EuroStat data

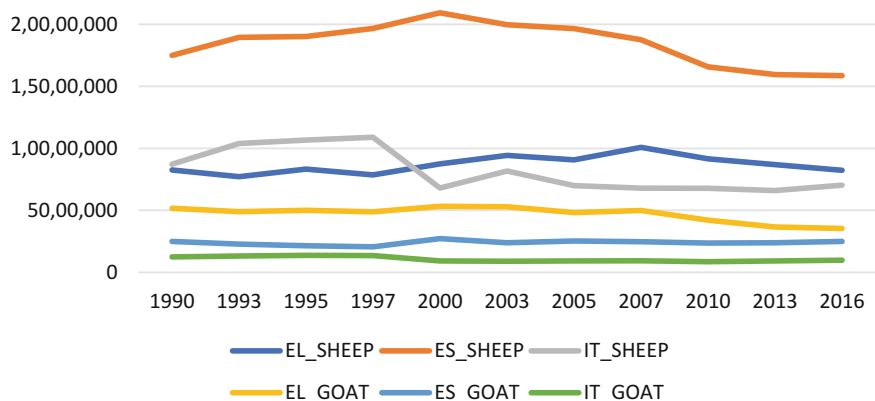


Fig. 6.6 Trends in national sheep and goat flocks in Greece, Spain and Italy (years 1990–2016). (Map legend: *EL* Greece, *ES* Spain, *IT* Italy. Source: Our elaboration on EuroStat data)

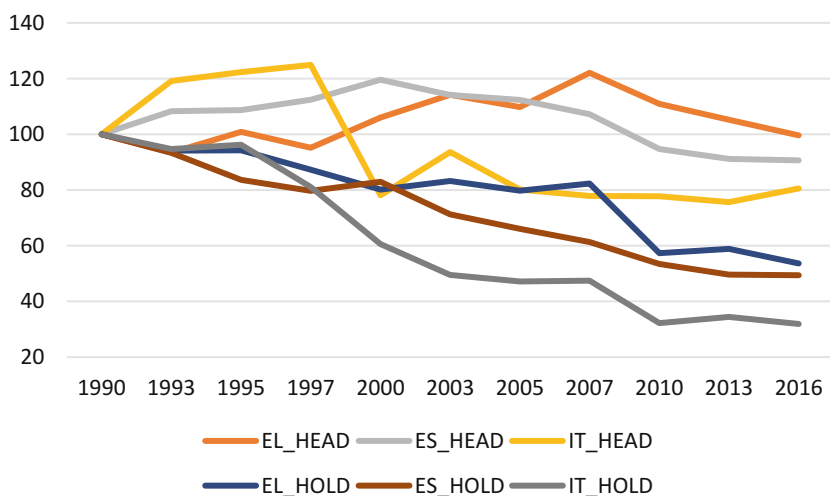


Fig. 6.7 Trends in national sheep flock and sheep farms in Greece, Spain and Italy (years 1990–2016 – index year: 1990 = 100). (Map legend: *EL* Greece, *ES* Spain, *IT* Italy, *HEAD* amount of sheep, *HOLD* amount of sheep farms. Source: Our elaboration on EuroStat data)

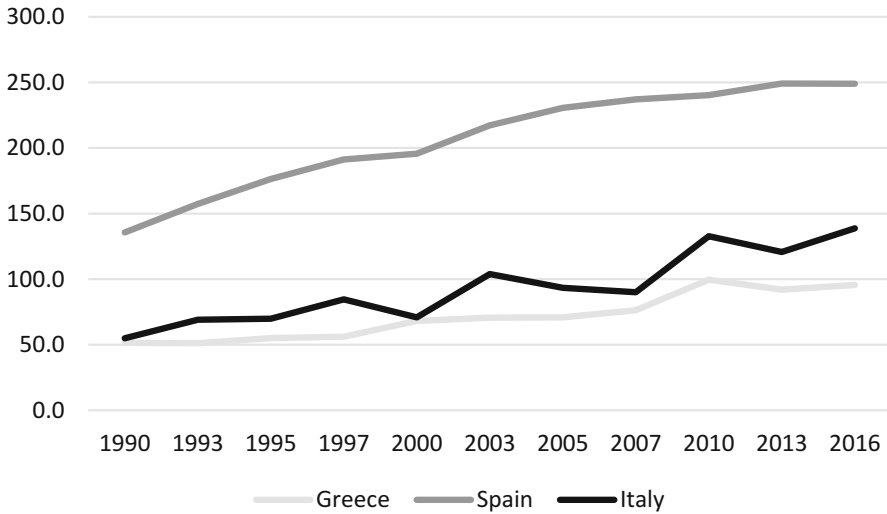


Fig. 6.8 Trend for average sheep farm size (average of sheep number for farm) in Greece, Spain and Italy (years 1990–2016). (Source: Our elaboration on EuroStat data)

We will use here some basic indicators referring to agro-pastoralism in Greece, Spain and Italy in recent decades, to assess the dynamics and trends that have characterised this sector in marginal rural areas and less industrialized regions of the recent decades in the EUMed. These data include the amount of agro-pastoral farms, the consistency of sheep and goats flocks (typically raised in extensive systems) as well as data related to the use of grazing lands.

In **Greece**, the livestock sector contributes to 28.3% of the total added value of national agriculture, and it has been particularly affected by recent declining trends. Small ruminant farming is the most important livestock production system in Greece; sheep and goats represent about 75% of the overall grazing units in the country, contributing significantly to local income and national GDP. Official data indicate that this sector accounts for 27% of the gross animal production value and 7.2% of the gross agricultural production value of the country (Hellenic Statistical Authority 2009).

It is specifically relevant in maintaining rural populations and as a main pattern of landscape management in the inner and island territories of the country, where employment opportunities outside livestock farming are limited. In these areas agro-pastoralism employs 17% of the workforce and accounts for 6.5% of the gross domestic product (Ragkos et al. 2016a, b).

According to Agricultural Census in Greece, livestock farms have decreased consistently in recent decades, with a drop of 39% from 2000 to 2016. Sheep are by far the most common livestock (representing about 38% of the total livestock

population), but sheep farms have followed the same trends, although variations in sheep units have been changing through time in less linear ways (Table 6.3). During the same period permanent grasslands increased consistently (+200%), indicating the growing relevance of extensive livestock breeding in some Greek regions during the recent decades.

Agro-pastoralism in Greece is territorially diversified: in Central Greece (Thessaly) as much as in the Northern, mountainous areas (Epirus) a mixed system of transhumance and semi-extensive sheep and goat breeding prevails. In lowlands more intensive sheep farming characterized by high investments and modern infrastructure has emerged especially since the 2000s. In most islands extensive grazing of mostly small ruminants represents a main source of livelihood for many rural communities, through the processing and the sale of Feta cheese through touristic networks (Ragkos et al. 2018).

In **Spain**, sheep and goat farming represent about a third of the overall livestock farm units in the country. Accession to EU in 1986 and corresponding financial flows had not interrupted the downward trend of traditional farming systems, particularly for livestock. The agricultural holdings with livestock decreased by 47,7% between 2000 and 2016 (Table 6.4). Data reveal that it was mostly smaller sized farms that disappeared from the landscape. Larger farms with more intensive livestock rearing have increased their stock of cattle and pig, while sheep and goat stock have decreased by 24,2% and 8,6% respectively. Territorial diversity is huge in Spain, from the northern Pyrenees, to central mountainous *mesta* systems, to drier pasturelands in Andalusia and Extremadura. Indications about change in pasturelands use are though similar throughout the country.

Satellite imagery confirms a –19% decline in grazed grasslands from 2000 to 2016 all over Spain, mostly due to changes in extensive livestock census, but also because of the different management patterns applied. A similar trend has been observed in dry mountainous areas, where the intensification of management in sheep farms is negatively related to (a) the use of natural grazing resources and to (b) the lack of generational renewal that risks compromising the continuity of most extensive farms. Depopulation and abandonment in these areas are reported to largely affect land use change, with significant impacts on environmental services and public goods (Caballero et al. 2009; Porqueddu et al. 2017).

In **Italy**, small ruminants breeding is a typical activity in most inner parts of the country, including in the Appenine and Alpine mountainous ranges, and in the islands. Within the period 1990–2016 agro-pastoral farms have undergone a process of concentration and modernization. Though the amount of sheep farms has dramatically dropped (–74,9%), during the same period the national sheep flock has decreased to a much lower degree (–21%). The average farm size (average of sheep number for farms) has shifted from almost 54,9 heads on average per flock to 138,7, almost three times more in less than two decades. In the same period,

grazed pastures have undergone a gradual, continuous and consistent reduction (−23,4%, Table 6.5).

In 2016 grazing resources such as permanent grasslands and pastures still cover though large part of the agricultural land throughout the country – North West (32.5%), North East (24%), Southern Italy (20.6%) and Central Italy (18.5%), and about 40% of Sardinia and Sicily islands (Table 6.6). While agro-pastoral breeding of sheep, goats and even cattle are widespread in the large marginal territories of the country, territorial differences are many across regions and between Alpine, Apennine and insular settings.

6.4 Shepherding Labour and Immigrant Workforce in the Mediterranean Agro-pastoralism

Due to the extensive nature of agro-pastoralism, the work of the shepherd is intense and encompasses both physical labour as well as technical and managerial skills that range from knowledge about the climate, the vegetation, animal physiology and health, the ethology of predators, etc. (refer to Meuret 2010). Most of the shepherd's time is spent in harsh conditions, with limited access to public services, scarce connectivity and few opportunities for leisure and alternative activities. Continuous mobility and processing of milk add burdens to daily mansions, while the growing presence of predators and climatic vagaries represent further hardening factors. The shepherding profession relies thus on several technical and strategic skills, with specific ecological know-how as well as physical endurance.

In recent decades living conditions of shepherds have hardly improved, while working conditions have intensified, through a significant increase in their tasks and responsibilities. At the same time earnings have fallen as a result of competition on the international markets. Sectoral restructuring has thus contributed to creating unattractive conditions for the new generations, who have often decided not to follow their fathers' footsteps, and to avoid engaging in a profession with an uncertain perspective.

Through these lenses one can understand the crisis of agro-pastoral “vocation” and the relative lack of manpower and the problems of generational renewal on EU pasturelands in the Alps, Epirus, Apennines and Pyrenees, which rank among the areas most exposed to the risk of abandonment.

Figure 6.9 and Table 6.7 show that in Italy, Spain and Greece agro-pastoralist are younger than other farmers. Despite this, the problem of generational turnover appears evident, as over 50% of sheep and goats farmers are older than 55 years.

The challenge related to an aging population and limited generational renewal had already been identified as a priority by the Pastomed program, which in 2007

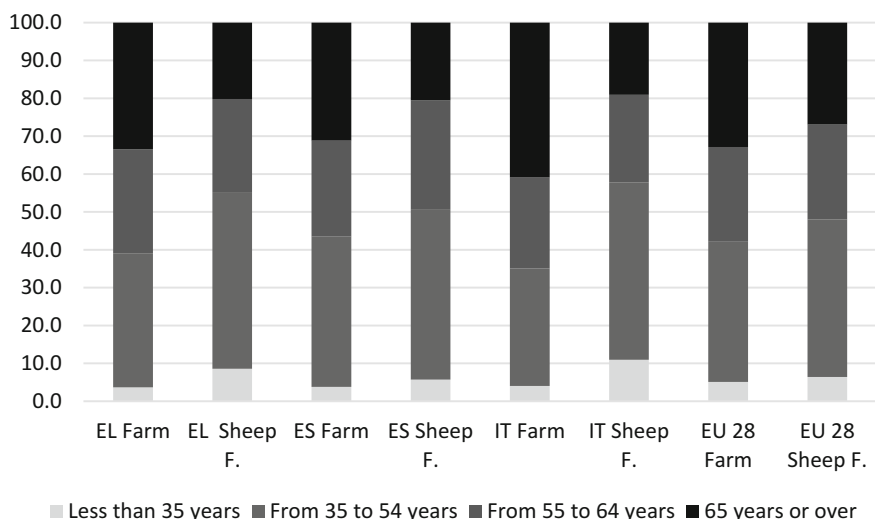


Fig. 6.9 Farm indicators by age of the manager in 2016 (comparison between “average” and “sheep, goats and other grazing livestock” farms). (Map legend: *EL Farm* Greece Farms, *EL Sheep F.* Greece “sheep, goats and other grazing livestock” farms, *ES Farm* Spanish Farms, *ES Sheep F.* Spanish “sheep, goats and other grazing livestock” farms, *IT Farm* Italian Farms, *IT Sheep F.* Italian “sheep, goats and other grazing livestock” farms. Source: Our elaboration on EuroStat data)

Table 6.7 Age of the farmers in 2016 and 2013

Country	Year	Less than 25 years	From 25 to 34 years	From 55 to 64 years	65 years or over
Average farmers					
Greece	2016	0.4	3.3	27.4	33.5
	2013	0.8	6.1	21.6	33.3
Spain	2016	0.2	3.6	25.4	31.2
	2013	0.4	4.9	25.6	29.7
Italy	2016	0.4	3.6	24	40.9
	2013	0.7	4.4	24.3	37.2
EU 28	2016	0.5	4.7	25	32.8
	2013	0.8	6.7	23.6	29.6
Sheep, goats and other grazing livestock farmers					
Greece	2016	0.7	7.9	24.6	20.2
	2013	2.7	14.5	19.6	18.1
Spain	2016	0.6	5.1	28.7	20.5
	2013	0.8	7.4	26.0	19.7
Italy	2016	1.2	9.8	23.1	19.1
	2013	2.2	11.5	21.4	16.9
EU 28	2016	0.7	5.7	25.0	26.9
	2013	1.1	8.0	23.9	24.4

Comparison between “average” and “sheep, goats and other grazing livestock” farms
Source: Our elaboration on EuroStat data

reported “the very high rate of over-55 compared with those under 35 years of age (...) and in many areas, the presence of elderly people 10 times more than young ones!” (Pastomed 2007:18). According to Slow Food, amongst local agricultural products in high danger of extinction, those from extensive livestock systems rank highest (dairy products are first, and meat second in many parts of southern Europe), due to the decrease of human resources (Essedra 2015).

As the local youth is decreasingly interested in working in this sector, the shepherding workforce has also changed, from family members to salaried labourers, and eventually from local workers to foreign ones. Today large parts of EUMed pasturelands are grazed by local flocks accompanied by immigrant shepherds who have come to fill this labour shortage, at a relatively low cost. Even the newly established agro-pastoral farms and enterprises often rely on immigrants’ workforce (Circerchia and Pallara 2009; Cicerchia 2012, 2014; Nori and de Marchi 2015).

In Greece there has been a massive influx of immigrants to rural areas in recent decades, especially following the collapse of the Albanian regime and the consequential borders opening in the early 1990s. Important proportions of Albanians came to live and work in mountainous villages of northern Epirus, contributing significantly to the restructuring of the extensive livestock sector and to the local social, economic and demographic fibres (Kasimis and Papadopoulos 2005; Kasimis 2010). These early flows slowly opened the way to shepherds originating from Eastern Europe (Bulgaria), and more recently to workers from Eastern Asia (India and Pakistan). In the Epirus and Peloponnesus immigrants represent today about half of the agro-pastoral salaried workforce; in Crete they account for about a third (Ragkos et al. 2013; Nori 2018).

By providing a skilled workforce at a relatively low cost, immigrant shepherds have contributed to ensuring the maintenance and the reproduction of agro-pastoral enterprises. Due to the shortage of family labour, the recruitment of immigrants has enabled farm women to maintain their domestic role, and younger household members to continue studying and/or looking for employment opportunities outside the agricultural sector (Papadopoulos and Roumpakis 2009; Ragkos et al. 2016a). These contributions have supported on one side the development of large, innovative and specialized dairy farms along the schemes proposed by the CAP, while on the other side they have also enabled the maintenance of more traditional transhumance systems that characterize agro-pastoral resource management in certain parts of the country.

In Spain, immigration from a variety of countries has contributed to the labour reconfiguration of several local agro-pastoral systems. In areas where predation is encroaching, the presence of shepherds is becoming increasingly important to take care of flocks. For example, in the north-eastern Pyrenees, immigrants constitute about half of the salaried shepherding workforce. Traditionally these immigrants originate from Morocco and Romania, but more recent trends indicate a growing

presence of shepherds issued from Bulgaria, Ukraine, and increasingly Sub-Saharan and Latin-American workers. The ratio of immigrant shepherding workforce decreases to one in three workers in central Spain, in the Castillas, as well as in Galicia and Extremadura, where Portuguese workers are more likely to be found (Nori 2017a, b). Some of these workers have joined some form of training in one of the six pastoral regional schools present in the country.

In Italy the salaried workforce in livestock production is largely and increasingly composed of immigrants, due to the difficulty of recruiting local people. While the presence of immigrant workers is well reported in more intensive livestock farming (Lum 2011), their contribution to the agro-pastoral systems have been only limitedly appreciated (Nori 2016; Farinella et al. 2017).

Immigrants constitute today about two-thirds of the agro-pastoral salaried workforce in most Alpine and Apennine pastures in Italy, where the growing presence of predators has contributed to the reincorporation of shepherds in many inner areas of the country (Nori and de Marchi 2015). In Abruzzo, a region with an important pastoral tradition, official data indicates that nine over ten salaried shepherds are Macedonians or Romanians (Coldiretti 2010). In Sardinia, where agro-pastoral land use covers most of the island territory and whose small ruminants' stock represents over 40% of the national flock, one every three salaried shepherds is a foreigner, representing a critical resource for reproducing the family farming enterprise (Farinella and Mannia 2017, 2018; Nori 2018; Farinella 2019b).

Box: Shifting Workforce – The Emblematic Example of Sardinian Pastoralism

In the past being a salaried shepherd (*su theracu* in Sardinian language) represented a common step in the socio-economic career of local youth, before generating own capacities and money to raise a herd on your own right (Farinella and Mannia 2017, 2018). Today conditions have made this job not attractive for young people who rather prefer emigrating elsewhere in search of employment. It is today up to immigrant workforce to perform the functions related to livestock management and breeding, but also collateral tasks such as clearing lands, building fences, collecting timber, farming animal feed, producing cheese, as well as building or mechanical activities on the farm. By triangulating data from different sources on resident and working populations, estimates attest to about a thousand the Romanians employed in agro-pastoralism in the region in 2016, mostly engaged in lowland medium-sized, semi-intensive sheep farms (Farinella and Mannia 2017, 2018). In the last two years the number of Romanians have decreased, during the milk crisis (Farinella 2019a, b; Simula 2019).

Most immigrant shepherds originate from other pastoral communities in the Mediterranean, and thus show some skills and capacities related to livestock husbandry. In some regions a process of substitution of a group over another is reported, whereby the Albanians, Macedonians and Moroccans that started working as shepherds in the 1990s have been replaced by Romanians in the 2000s, due to the latter's accession to the EU, and the related facilitation in administrative and mobility terms. More recently an increase of workforce originating from sub-Saharan Africa as well as Eastern Asia is being reported (Nori and López-i-Gelats 2017).

Data and trends in Portugal and France are similar, although the dynamics of immigrants' shepherding workforce have followed different patterns and trajectories. Other agricultural sub-sectors specific to marginal territories show similar dynamics; for example, workers from Eastern Europe and the Balkans account for about 40% of the forestry workforce in central Italy, and in many cases they provide a crucial contribution to maintain longstanding local, traditional sylvicultural systems (Cicerchia and Pallara 2009; Luisi and Nori 2017).

6.5 The Conditions of Immigrant Shepherds

The typical profile of migrants that have come to work as a shepherd in EUMed region is that of a male, aged between 25 and 40, native of a country of the Mediterranean (predominantly from Romania, Morocco, Albania or northern Macedonia), but recently also from Asia (e.g. Pakistan, India), sub-Saharan Africa (e.g. Ghana, Senegal) and even from Latin America (in Spain). Though not necessarily from pastoral areas, the large majority comes from a rural setting and has direct experience in livestock breeding:

We are organised and upon demand we can seek for more workers from our networks, mostly in our villages in north-eastern Romania. There, everybody used to keep sheep. Most households produced their own cheese, that is where we have learnt. We know how to deal with sheep. (TRAMed Interview with a shepherd, Triveneto, April 2015)

History, language, and the networks of migrants have shaped the different migratory patterns. Romanians are mostly found in Italy and parts of Spain, Moroccans in parts of Spain and southern France, and Albanians in Greece. Socio-cultural differences aside (e.g. Orthodox or Muslim in predominately Catholic societies), immigrant shepherds are generally appreciated for their technical skills, as well as for their endurance, flexibility and adaptability, in that they accept the working conditions and salary generally rejected by the local population; "they are

like us 60 years ago” (Nori and López-i-Gelats 2017). Younger shepherds are preferred as they are more likely to learn local languages and follow indications.

Average immigrant shepherds work individually and live in isolated sheepfolds, often in remote areas far from villages and with limited means to move. Cases exist in certain areas where shepherds are seasonal workers, who tend to return home or to work elsewhere when the peak season is over (ie. once the transhumance or the intense milking periods are over).

Salary rates normally range between 600 and 1000 euros per month, for a full-time engagement, with very limited free time and little holiday. In addition to the salary bed and board are often provided by the farm, though often associated to the sheepfolds. This arrangement enables farmers to underpay workers and to maintain forms of control on them (Farinella and Mannia 2018). Immigrants’ revenue is often invested in their home communities, at times on the purchase of family land and livestock, with the hope they would one day get back; this also results from having limited chances to graduate and remain in destination areas.

The contractual arrangements are often quite informal, partial and precarious. Conditions of illegality, limited rights, scarce salary and poor living and working standards represent typical features of workers operating in this grey context, on the margins of a rural world that is already marginal on its own. There are no trade unions, recruitment is carried out exclusively by word of mouth through personal networks and individual arrangements that presents at times exploitative mechanisms (Farinella 2019b).

These elements add to a situation where limited access to land and credit are the main factors inhibiting the capacity and the interest of these workers to remain in this sector. This is further exacerbated by constraints related to residence permits, entrepreneurial licenses and overall citizenship rights, including compliance with CAP procedures and rules, which would enable them accessing precious financial support. In this context, workers see little chance for improving their socio-economic conditions. They often remain a few months or years in this sector, switching between different farms in search of more comfortable living and working conditions. However, the incentives to take over existing farms or establishing new ones remain limited.

The limited formalization of contractual relationships, poor labour conditions and the very scanty prospects for a socio-economic “upgrade” are complementary and inter-twined elements that characterize most Euro-Mediterranean agriculture (Pittau and Ricci 2015; Farinella and Mannia 2018).

The fact that a generational change is accompanied by an ethnic one is not new to the region. Over the last century, Mediterranean pastoralism has witnessed Sardinians colonising abandoned pasturelands in central Italy, southern Spanish herders

moving to graze the Pyrenees, northern Italian shepherds migrating to Provence and Switzerland, the moves of Valachos and Arvanites flocks and shepherds throughout Greece and Kurdish shepherds in several regions of western Turkey (Lebaudy 2010; Meloni 2011; Nori 2016 – cfr. Table 6.8 and Fig. 6.10). These communities have substantially contributed to keeping pasturelands of destination countries populated, alive and productive.

Compared to past migratory dynamics, today an important difference relates to the difficulties faced by immigrants to graduate socially and economically in their activity. Migrants that have recently come to operate as shepherds in the EUMed have barely improved through time their conditions as workers and much as citizens. Their transition from workers to entrepreneurship and livestock farmers in their own

Table 6.8 Migratory flows of shepherds through the Mediterranean in the twentieth century

Destination region	Origin of migrant shepherds				
	Late 1800	1950s	1980s	1990s	2000s
Provence	Italy and Spain	Morocco and Tunisia			Romania
Central Italy		Sardinia	Morocco and Tunisia	Albania, FYROM	Romania
Pyrenees	Neighbouring valleys	Andalusia		Morocco	Romania, sub-Saharan Africa
Turkey		Kurdistan		Afghanistan	

Source: TRAMED data elaboration



Fig. 6.10 Trajectories of past (darker) and present (lighter) patterns of shepherds’ migrations in the Mediterranean. (Source: TRAMED data elaboration)

right shows very low rates. This in turn constrains the capacity of the incoming population to sustainably contribute to repopulate pastures and to reproduce agro-pastoralism in the longer term.

6.6 Stories of Immigrants in Italian Agro-pastoralism

In this section, some personal stories from the Italian agro-pastoralism are detailed, so to provide a human perspective to the dynamics and processes assessed also with a view to focus on people, individual stories and personal projects.

Italy is a country where *Made in Italy* agro-food represents a strategic sector and plays a critical economic role through agricultural export and the tourism industry. The Italian dairy sector is representative of the contribution of immigrants to the globally recognised excellence of this sector.¹ The agro-pastoral immigrant workforce is in fact not only relevant in terms of taking care of herds and flocks, but as well in the dairy processing industry. Apart from the better-known case of the Sikh community with the Parmesan (Lum 2011; Azzeruoli 2014), and the Bengali communities for the buffalo mozzarella, foreign communities play a strategic contribution in the value chains of Fontina and Pecorino cheeses, which are typical regional products issued from pastoral settings. Most representative “made in Italy” cheeses are in fact made by immigrants’ hands.

In Valle d’Aosta, almost two thirds of the workers employed in cattle breeding are foreigners. From taking care of the local breed cattle to the processing of milk in the alpine huts (*malghe*), immigrants largely contribute to the production of the famous Fontina cheese that characterises the region. Formerly almost exclusively Moroccan shepherds, in recent years they have been partially replaced by Romanians. Data from 2014 reported 303 non-EU workers (predominantly Moroccans) and 335 foreign EU workers (predominantly Romanians) officially employed, together with several irregular workers (around 100). Foreign labourers have more than doubled over the last two decades, representing to date about more than two thirds of the salaried shepherding workforce. Living and working conditions are quite harsh, these being main reasons local inhabitants do not seem interested in undertaking this work. In such terms immigrant shepherds do not compete thus with local workers, and their contribution can therefore be said to be essential for maintaining the traditional system of breeding for the production of Fontina DOP (Cicerchia 2014; Nori 2016, 2018).

In Sardinia, usually, Romanians are involved only in the sheep management and in the milking activities, as most shepherds produce milk for processing industries.

¹<http://slowfood.com/resistenzacasearia/ita/77/vullnet-alushani-caciocavallo-podolico-del-gargano-italia>

They often work in pairs and are regulated with seasonal contracts, which expire in summer, when sheep milking is over. Some of them engage in complementary activities to supplement their salary, such as vineyard pruning, harvesting wood and collecting cork.

In multifunctional farms, where sheep-breeding is associated to other activities (agritourism, educational farms, other breeding and agricultural activities) and farmers produce artisanal cheeses in local dairies, Romanians are also directly involved in the dairy processing, including the traditional Fiore Sardo and Pecorino Sardo (Farinella 2019b).

In Sardinia and in other Italian regions, exceptional cases exist where foreign shepherds have engaged and succeeded in *scaling up to livestock ownership and farm management*. In these experience immigrant shepherds look into opportunities to set up their own flocks, and/or cooperate amongst themselves or with local dwellers in sharing land, subsidies or credit assets (Farinella and Mannia 2017; Farinella et al. 2017; Nori 2018).

For instance, M., a Romanian shepherd who came to Italy 10 years ago, initially worked without a contract or insurance. Seven years ago, he got a contract which finally made him eligible for Italian citizenship, which is needed to register as an entrepreneur and to legally own a flock. With his savings, he was able to accumulate a few animals each year, which he kept within the flock of his employer. Recently, he and his employer have been talking about jointly managing a common flock. They plan to share the costs and responsibilities, as well as the profits. With an established business, M. will be able to bring his wife and children to Italy. Other examples of such socio-economic graduation exist where two immigrants have shared resources and responsibilities or in areas where pasture lands are communal and therefore more easily accessible.

Another similar case is the story of G., a Romanian shepherd in Sardinia. G. started as a worker in a sheep farm. After a short time he decided to try to start his own business using the networks that he created in the area and the relationship of trust with his employer, with whom they started a cooperation. Following local practices whereby farms could be split amongst siblings or relatives to enhance and extend CAP support. G. started his own activity, though he still works with his previous Sardinian employer. The Romanian shepherd continues to live in a sheepfold house, made available by his now Sardinian colleague. All the activities (bringing the animals to the pasture, the milking and the cultivation of the land) continues to be carried out together by the Sardinian and the Romanian shepherd, using the structures of the former. However, G. is no longer an employee, he does not receive a salary; he is in charge of his own milk, while also receiving CAP support. He does not pay the rental, but he is charged with his work for the land and structures he utilizes. This is an example of very interesting cooperation, which is based on local forms of reciprocity and non-monetised exchanges. In this way positive externalities are created for both individuals as well as for the local

community they live in. G. has the dream to save to be able to buy a piece of land in Sardinia.

Another example of multi-functional rural entrepreneurship by migrants is that of the organic farm “*La Capra Felice*”, launched in Trentino in 2010 by a young Ethiopian woman. After studying in Italy, she returned to her country of origin to create a project of sustainable agriculture, but she had eventually been forced to leave the country because of its struggle against the excessive power of food multinationals. When she returned to Italy, she started a multifunctional agricultural activity, in which she raises goats of the native breed, the Mòchena spotted, at risk of extinction and other locally typical animals.

She produces directly and sells locally her own diversified homemade organic sheep-goat cheeses, through short supply chain networks. Some of her dairy products have gained the Slow Food dairy resistance award. The choice of an extensive breeding, based on wild grazing and on particularly frugal native breeds, allows the milk to have a high organoleptic quality (which derives from the biodiversity of natural pastures) and to organize a diversified agricultural activity, which sustainable in either economic terms as well as agro-ecological terms. She organizes training activities and educational farming with the primary school and contribute to the production of services and welfare in rural areas, for example through the reception of a refugee (Sivini 2019).

6.7 Conclusions

Agro-pastoralism represents an increasingly appreciated practice in Europe and elsewhere for its quality products as well as for the important public goods it contributes, in the form of socio-ecosystem services. These recognitions are rewarded through public subsidies and market pricing. Despite growing societal acknowledgement and appreciation, agro-pastoralism is though decreasingly practiced by the local populations; the consistent decrease in farms and flocks holds important consequences on the livelihood systems as well as on the natural resource management of marginal territories.

Immigrants have proved to be a strategic resource to fill the shepherding labour gaps left by the declining, ageing and decreasingly interested local population. Notwithstanding the important contributions received through public policies, and no matter what type of entrepreneurial strategy pursued to cope with the sector restructuring, immigrant shepherds have shown to represents a strategic asset for this agricultural practice, by providing a skilled labor force at a relatively low cost. Without foreign workers, many agro-pastoral farms would face today great difficulty in pursuing their activities and in so maintaining EUMed marginal territories alive and productive.

Yet oftentimes the conditions under which these dynamics are taking place are not enabling the sustainable reproduction and development of agro-pastoralism in the region, as the conditions and the opportunities immigrant shepherds enjoy are not

conducive towards their integration into agro-pastoralism in more consistent and structured ways. In a lose-lose situation, immigrant shepherds do not graduate in socio-economic terms thus to evolve into farmers themselves, while elderly farmers do not find people capable of taking over their farms when they retire. Society at large witnesses the disappearance of flocks, the abandonment of marginal lands, together with the loss of quality products and services, despite important degrees of public investments.

This case reflects more in general the complexity and contradictions of immigrant presence in rural regions and in the agriculture sector – in that foreign workers are willing to accept working conditions and salaries usually rejected by the local people, their presence is only temporary, with relevant implications for local patterns of rural development.

The cases where shepherds have graduated to livestock farmers represent rare exceptions, and important opportunities to capitalise upon, with a view to secure a more sustainable rural society.

Appendix: The Presence of Immigrants in EUMed Agro-pastoralism

Region	Main production	% foreign on total salaried shepherd	Origin country of most of them	Average monthly salary (€)	Source
Italy					
Abruzzo	Milk	90%	Macedonia, Romania, Albania	800	Coldiretti (2010)
Triveneto	Meat	70%	Romania	800	TRAMed
Piedmont	Meat and milk	70%	Romania, Moldavia	800	TRAMed; Cicerchia and Pallara (2009) and Cicerchia (2014)
Val d'Aosta	Milky cows	70%	Romania, Morocco	2000	Cicerchia (2014)
Sardinia	Milk	35%	Romania, Morocco	500–600	Farinella and Mannia (2017); TRAMed
Calabria	Milk	35%	Kurdistan, Pakistan, India	500–600	Cicerchia and Pallara (2009)
Greece					
Thessaly	Milk	50%	Albania, Bulgaria, Romanian Vlachs	400–600	Thales, Domestic

(continued)

Region	Main production	% foreign on total salaried shepherd	Origin country of most of them	Average monthly salary (€)	Source
Peloponnese	Milk	40%	Albania, Bulgaria, India, Pakistan	400–600	Thales, Domestic
Crete	Milk	35%	Albania, Bulgaria, India, Pakistan	400–600	Thales, TRAMed
France					
Provence	Meat	Mostly during winter for large flocks	Romania, Morocco, Tunisia	1400	TRAMed; Fossati (2015)
		Mostly on summer pastures	Other regions of France or Northern Europe	1500–2500	TRAMed; Meuret (2010)
Pyrenees	Milk	Few salaried shepherds	Quite limited phenomenon		Meuret (2010)
Maritime Alps	Meat	20%	Romania		TRAMed
Corse	Milk and meat		Morocco		Terrazzoni (2010)
Spain					
Valencia Community		70%	Morocco	600	AVA (2009)
Catalan Pyrenees	Meat	55%	Romania, sub-Saharan Africa	6–700	Nadal et al. (2010)
Aragon Pyrenees	Meat	60%	Morocco, Romania, Bulgaria, Ukraine		TRAMed;
Andalucia			Romania, sub-Saharan Africa		TRAMed;
Castillas	C. León meat C. Mancha milk	35%	Morocco, Romania, Bulgaria, Portugal		TRAMed; Plataforma
Basque country	Milk		Romania	1000	TRAMed;
Galicia			Portugal		TRAMed;
Extremadura			Portugal		TRAMed;

Source: TRAMed project

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