
Support for Farmers' Cooperatives

Sector Report Sheep

Harold van der Meulen
Henri Prins
Krijn J. Poppe



The 2011-2012 project „Support for Farmers’ Cooperatives“ is commissioned and funded by the European Commission, DG Agriculture and Rural Development.

Contract Number: 30-CE-0395921/00-42.

The project is managed by Wageningen UR’s Agricultural Economics Research Institute LEI and Wageningen University. Project managers: Krijn J. Poppe and Jos Bijman.

Other members of the consortium are:

- Pellervo Economic Research PTT, Finland: Perttu Pyykkönen
- University of Helsinki, Finland: Petri Ollila
- Agricultural Economics Research Institute, Greece: Constantine Iliopoulos
- Justus Liebig University Giessen, Germany: Rainer Kühl
- Humboldt University Berlin, Germany: Konrad Hagedorn, Markus Hanisch and Renate Judis
- HIVA Katholieke Universiteit Leuven, Belgium: Caroline Gijssels
- Rotterdam School of Management, Erasmus University, The Netherlands: George Hendrikse and Tony Hak

How to cite this report:

Meulen, van der H., H. Prins, K.J. Poppe (2012). Support for Farmers’ Cooperatives; Sector Report Sheep. Wageningen: Wageningen UR.

Disclaimer:

This study, financed by the European Commission, was carried out by a consortium under the management of LEI Wageningen UR. The conclusions and recommendations presented in this report are the sole responsibility of the research consortium and do not necessarily reflect the opinion of the Commission or anticipate its future policies.

Support for Farmers' Cooperatives

Sector Report Sheep

Harold van der Meulen

LEI Wageningen UR, The Netherlands

Henri Prins

LEI Wageningen UR, The Netherlands

Krijn J. Poppe

LEI Wageningen UR, The Netherlands

November 2011

Corresponding author:

Harold van der Meulen
LEI Wageningen UR
P.O. Box 29703
2502 LS The Hague
The Netherlands
Email: Harold.vandermeulen@wur.nl

Preface and acknowledgements

In order to foster the competitiveness of the food supply chain, the European Commission is committed to promote and facilitate the restructuring and consolidation of the agricultural sector by encouraging the creation of voluntary agricultural producer organizations. To support the policy making process DG Agriculture and Rural Development has launched a large study, "Support for Farmers' Cooperatives (SFC)", that will provide insights on successful cooperatives and producer organizations as well as on effective support measures for these organizations. These insights can be used by farmers themselves, in setting up and strengthening their collective organization, and by the European Commission in its effort to encourage the creation of agricultural producer organizations in the EU.

Within the framework of the SFC project this sector report on cooperatives in the sheep sector in the EU has been written.

Data collection for this report has been done in the summer of 2011.

In addition to this report, the SFC project has delivered 7 other sector reports, 27 country reports, 6 EU synthesis and comparative analysis reports, 33 case studies, a report on cluster analysis, a report on the development of agricultural cooperatives and relevant policy measures in other OECD countries, and a final report.

Table of contents

1 Introduction.....	5
1.1 Objective of the study.....	5
1.2 Analytical framework.....	5
1.3 Definition of the cooperative	6
1.4 Method of data collection	6
1.5 Period under study.....	6
2 Statistics on the evolution and position of agriculture.....	7
2.1 Special characteristics of the sector due to character of the product and the influence of the Common Agricultural Policy.....	7
2.2 Share of the sector in agriculture and in National Product.....	7
2.3 Development in the number of farms	10
2.4 Economic indicators of farms	14
3 The evolution and position of cooperatives and their performance.....	16
3.1 Description of the food chain issues in the sector.....	16
3.2 Performance of coops (market shares, growth, other indicators).....	18
3.3 Description of largest farmer's cooperatives in the sector	19
4 Assessment of developments among cooperatives	21
4.1 The institutional environment	21
4.2 The role of cooperatives in the food chain	21
4.3 Internal Governance	23
4.4 Expert assessment of developments.....	25
5 Overview of policy measures and assessment of the influence of policy measures on the evolution and current position of cooperatives.....	26
5.1 Introduction	26
5.2 Overview of regulatory framework including fiscal and competition issues.....	26
5.3 Expert assessment of impact of policy measures.....	28
REFERENCES	29

1. Introduction

1.2 Objective of the study

The imbalances in bargaining power between the contracting parties in the food supply chain have drawn much attention, also from policy makers. The European Commission is committed to facilitate the restructuring of the sector by encouraging the creation of voluntary agricultural producer organizations. DG Agriculture and Rural Development has launched a large study, “Support for Farmers' Cooperatives”, that will provide the background knowledge that will help farmers organise themselves in cooperatives as a tool to consolidate their market orientation and so generate a solid market income. In the framework of this study, this report provides the relevant knowledge from sheep meat.

In this context, the specific objectives of the project, and this sector report, are the following:

First, to provide a comprehensive description of the current level of development of cooperatives and other forms of producer organizations in sheep meat. The description presented in this report will pay special attention to the following drivers and constraints for the development of cooperatives:

- Economic and fiscal incentives or disincentives and other public support measures at regional and national;
- Legal aspects, including those related to competition law and tax law;
- Historical, cultural and sociologically relevant aspects;
- The relationship between cooperatives/PO's and the actors of the food chain;
- Internal governance of the cooperatives/PO's.

Second, identify laws and regulations that enable or constrain cooperative development and third, to identify specific support measures and initiatives which have proved to be effective and efficient for promoting cooperatives and other forms of producer organizations in the agricultural sector in sheep meat.

1.3 Analytical framework

There are at least three main factors that determine the success of cooperatives in current food chains. These factors relate to (a) position in the food supply chain, (b) internal governance, and (c) the institutional environment. The position of the cooperative in the food supply chain refers to the competitiveness of the cooperative vis-à-vis its customers, such as processors, wholesalers and retailers. The internal governance refers to its decision-making processes, the role of the different governing bodies, and the allocation of control rights to the management (and the agency problems that goes with delegation of decision rights). The institutional environment refers to the social, cultural, political and legal context in which the cooperative is operating, and which may have a supporting or constraining effect on the performance of the cooperative. Those three factors constitute the three building blocks of the analytical framework applied in this study (Figure 1).

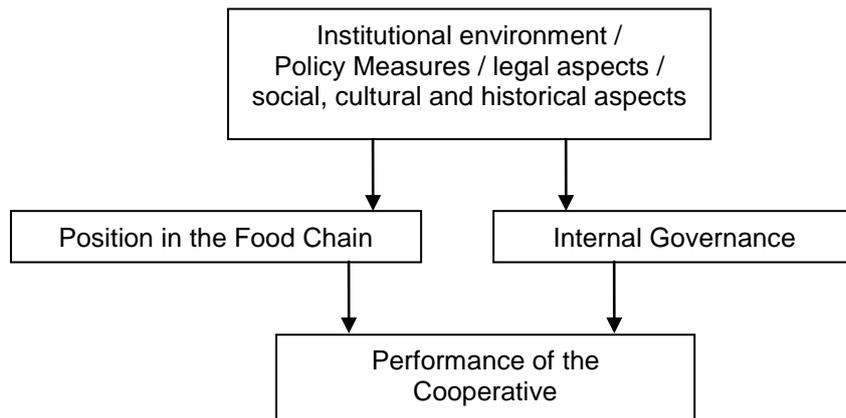


Figure 1. The core concepts of the study and their interrelatedness

1.4 Definition of the cooperative

In this study on cooperatives and policy measures we have used the following definition of cooperatives and Producer Organizations (POs). A cooperative/PO is an enterprise characterized by user-ownership, user-control and user-benefit:

- It is user-owned because the users of the services of the cooperative/PO also own the cooperative organization; ownership means that the users are the main providers of the equity capital in the organization;
- It is user-controlled because the users of the services of the cooperative/PO are also the ones that decide on the strategies and policies of the organization;
- It is for user-benefit, because all the benefits of the cooperative are distributed to its users on the basis of their use; thus, individual benefit is in proportion to individual use.

This definition of cooperatives and POs (from now on shortened in the text as cooperatives) includes cooperatives of cooperatives and associations of producer organization (often called federated or secondary cooperatives).

1.5 Method of data collection

This sector report is mainly based on the fact finding in 27 country reports, that were made earlier in this project, one per member state. In addition an inventory of policy measures at EU level was used. For these country reports multiple sources of information have been used, such as databases, interviews, corporate documents, academic and trade journal articles. The databases used are Amadeus, FADN, Eurostat and a database from DG Agri on the producer organizations in the fruit and vegetable sector. Also data provided by Copa-Cogeca has been used. In addition, information on individual cooperatives has been collected by studying annual reports, other corporate publications and websites. Interviews have been conducted with representatives of national associations of cooperatives, managers and board members of individual cooperatives, and academic or professional experts on cooperatives.

1.6 Period under study

This report covers the period from 2000 to 2010 and presents the most up-to-date information. This refers to both the factual data that has been collected and the literature that has been reviewed. For member states that joined in 2004 and 2007 the focus is on the post-accession period.

2 Statistics on the evolution and position of agriculture

2.1 Special characteristics of the sector due to character of the product and the influence of the Common Agricultural Policy

The market for sheep meat is tiny as compared to the market of pork, chicken or beef meat (see Table 1). Worldwide the share of sheep and goat meat is only 13% of the total meat production. In the EU-27 this percentage is even far lower: In 2008 the consumption of sheep and goat meat is only 3% of the total meat consumption (source: European Commission). Production and demand for sheep meat is seasonal. In a lot of countries within the EU, sheep and goat meat production is for subsistence or farm direct sales in the local market. Except the largest sheep meat producers in the EU, United Kingdom, Spain and France, it is quite obvious that the large slaughterhouses are actually not very much interested in slaughtering sheep.

The strengths of the sector lies in flexibility (animals can graze in many places) with a need for little infrastructure, the high quality of meat and the high number of autochthonous breeds (MARM, 2009).

Table 1. World production of meat (in millions ton), 2007-2010

	2007	2008	2009	2010
Beef meat	66,4	65,2	65,7	65,0
Pork meat	103,6	104,0	106,1	107
Sheep and goat meet	12,9	12,9	12,9	13,0
Poultrymeat	89,0	91,9	93,7	95,7

Source: FAO (2010).

The sheep and goat sector shows in most of the EU-countries low importance in the domestic meat consumption. However the sector has a great territorial importance, not only for its economic contribution but also from the point of view of social cohesion and the sustainable use of lands in which they operate, contributing to the maintenance of the environment and the continued human presence and economic viability in disfavoured rural zones (MARM, 2009).

The new CAP approved in 2006 and completed in 2010 resulted as well in a decline, given the decoupling of production with sector aid. As a result, many stock keepers have abandoned their herds or reduced their numbers (Alimarket, 20/10/2010).The high price of feed, animal diseases (Bluetongue, FMD) and general economic situation have also affected production in recent years.

2.2 Share of the sector in agriculture and in National Product

Figure 2 provides information on the development of sheep meat (incl. goats) in the EU for the period 2001-2009. In the last decade the total production value of sheep meat in the EU is practically stable at approximate 5.000 million euro.

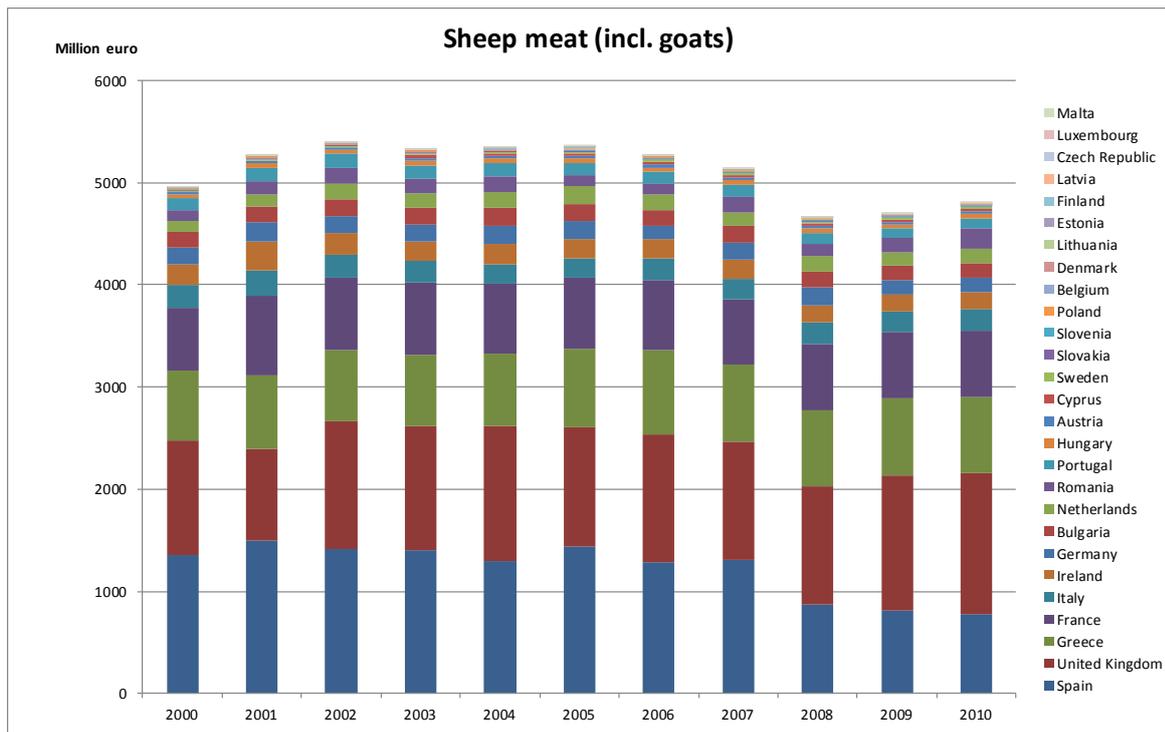


Figure 2 Trend in output per sector "2001" - "2009". Source: Economic Accounts of Agriculture, Eurostat.

Four producers of sheep meat in the EU, Spain, United Kingdom, Greece and France, are responsible for 75% of the output. In these countries production value has shown a decrease in Spain and an increase in the UK.

It is interesting how both countries reacted on the decoupling of the In the UK fully decoupling took place in 2005. In the years 2001 to 2004 the UK sheep flock was rather stable (table 2). The value per sheep went up, so the total production value reached its top in 2004. Since the decoupling the sheep flock shrunk; from 2005 to 2010 it decreased with 13%. The increase of the value per sheep continued. This two developments resulted in a small decrease of the total production since the decoupling

However Spain choose for only a 50% decoupling in 2005 the sheep flock reacted more fiercely compared to the UK. The decrease of the number of sheep in Spain dated already from 2000. This shrink was stimulated by the (partial) decoupling. From 2005 to 2010 the flock dropped with over 17%. A second reason was the diminishing value per sheep.

As a result of the new CAP, partial decoupling of direct payments, in Spain many stock keepers have abandoned their herds or reduced their numbers (Alimarket, 20/10/2010). The price of feed also affected production as well. See also figure 3.

Table 2. Number of sheep in the EU member states

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
United Kingdom	24,434	24,888	24,410	24,524	23,730	23,429	23,676	21,856	21,343	21,295
Spain	24,301	23,813	23,486	22,736	22,514	22,452	22,194	19,952	19,718	18,552
France	9,232	9,127	8,947	8,898	8,760	8,494	8,285	7,715	7,528	6,904
Greece	9,060	8,858	9,326	9,241	8,745	8,976	8,984	8,994	8,966	8,980
Italy	8,311	8,138	7,952	8,106	7,954	8,227	8,237	8,175	8,013	7,009
Romania	7,251	7,312	7,447	7,425	7,608	7,678	8,469	8,882	9,142	8,417
Ireland	4,807	4,829	4,850	4,557	4,257	3,826	3,531	3,423	3,183	3,122
Portugal	3,459	3,457	3,356	3,541	3,583	3,549	3,356	3,145	2,906	2,512
Germany	2,185	2,145	2,125	2,138	2,036	2,017	1,926	1,920	1,852	1,800
Bulgaria	1,571	1,728	1,599	1,693	1,602	1,635	1,526	1,475	1,400	1,368
Netherlands	1,250	1,300	1,476	1,700	1,725	1,755	1,715	1,545	1,091	1,211
Hungary	1,136	1,103	1,296	1,397	1,405	1,298	1,232	1,236	1,223	1,181
Croatia	540	580	587	722	797	680	:	643	619	630
Sweden	452	427	451	456	480	506	521	521	299	274
Poland	331	332	331	311	318	301	316	270	224	214
Austria	321	304	326	327	326	312	351	333	345	358
Slovakia	316	316	326	321	321	333	347	362	377	394
Cyprus	297	274	265	279	269	272	292	267	300	329
Belgium	153	146	:	:	:	:	:	:	:	:
Denmark	111	92	105	88	84	98	98	90	:	:
CzechRepublic	96	103	116	155	163	169	184	183	197	:
Slovenia	94	107	106	119	129	132	131	139	138	:
Finland	67	67	67	72	84	88	90	94	:	:
Latvia	29	32	39	39	42	41	54	67	:	:
Estonia	29	30	31	42	49	58	74	62	:	:
Lithuania	12	14	17	22	29	37	43	48	53	59
Malta	8	12	15	14	15	12	12	13	13	12
Luxembourg	7	9	7	7	9	9	8	8	9	8

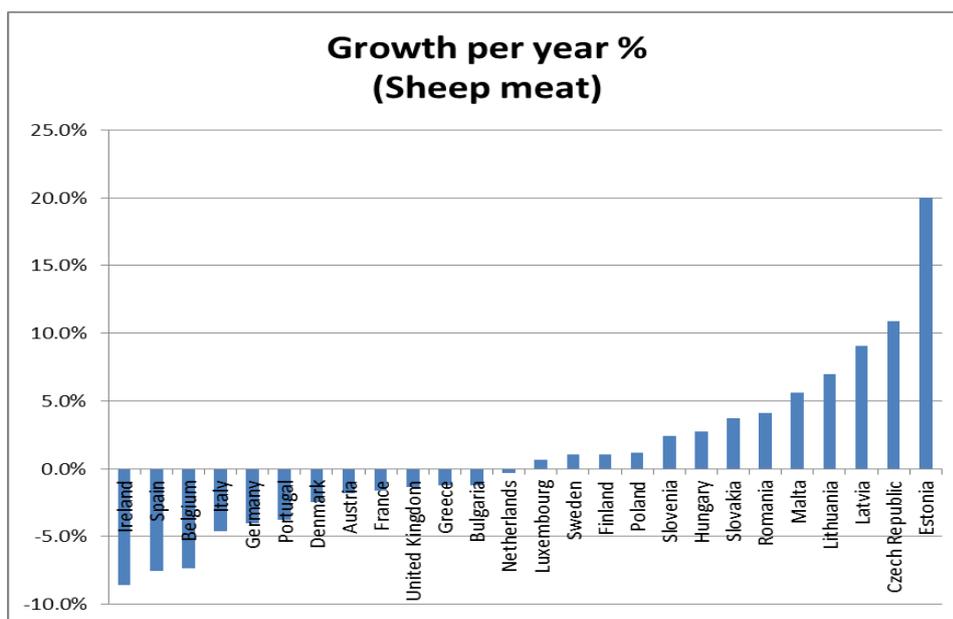


Figure 3 Change in output per year, per country. Source: Eurostat Economic Accounts.

Figure 3 shows the growth in output value of sheep meat per year, per country for the period 2001-2009. A big increase took place in the new member states of the EU, Estonia, Czech Republic, Latvia and Lithuania. This can be explained by the low production value in the base year 2001/2002 and the very small flock which has increased since. Nevertheless, the production of sheep meat in those countries is still very small (see also Figure 2). The steepest reduction in output was in Ireland, Spain and Belgium.

2.3 Development in the number of farms

The number of farms in sheep meat is given in Table 2 and Figure 4.

Table 2. Number of farms, 2000 and 2007

Country	2000	2007	Average change per year
Belgium	50	290	28,5%
Bulgaria	N.A.	22450	
Cyprus	N.A.	1690	
Czech Republic	N.A.	110	
Denmark	140	130	-1,1%
Germany	1870	1160	-6,6%
Greece	33430	34130	0,3%
Spain	35130	31590	-1,5%
Estonia	N.A.	670	
France	20810	19000	-1,3%
Hungary	N.A.	1640	
Ireland	22120	20360	-1,2%
Italy	28900	32410	1,7%
Lithuania	N.A.	460	
Luxembourg	40	50	3,2%
Latvia	N.A.	480	
Malta	N.A.	40	
Netherlands	6010	6820	1,8%
Austria	1010	1260	3,2%
Poland	N.A.	15140	
Portugal	23440	8710	-13,2%
Romania	N.A.	67580	
Finland	630	460	-4,4%
Sweden	230	30	-25,2%
Slovakia	N.A.	270	
Slovenia	N.A.	6320	
United Kingdom	28830	17250	-7,1%

Source: Eurostat, Farm Structure Survey.

For the new EU-member states, the number of farms in 2000 is not available.

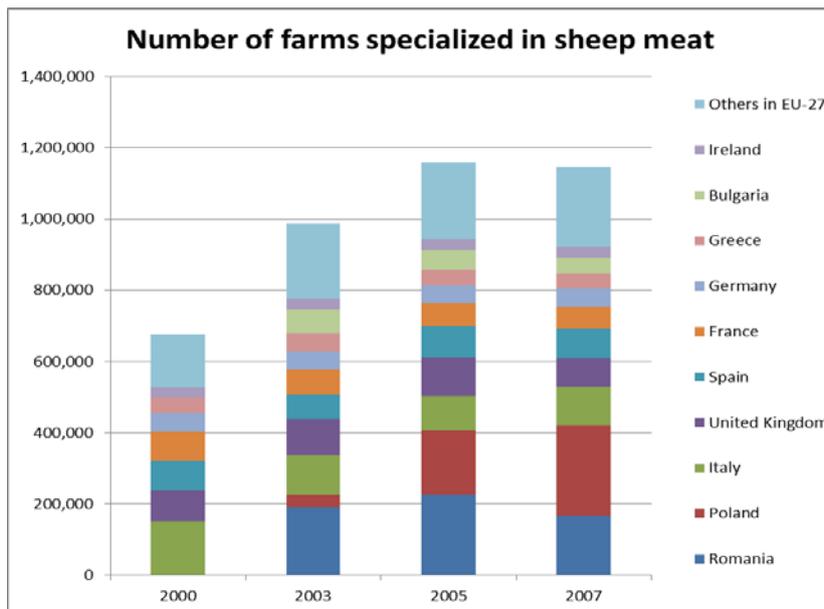


Figure 4 Number of specialized farms per country

The total number of farms specialized in sheep meat in the EU increased from 1 million in 2003 to approximately 1,150,000 million in 2007 (Table 1 and Figure 4). The biggest increase took place in Poland. This country counts a lot of small (less than 2 ESU) farms specialized in sheep meat (see Figure 5).

Size of farms

Farms come in different sizes from small part-time farms to large exploitations. Figure 5 shows the distribution of farms per size class, measured in European Size Units (ESU) per country and for the EU in total. In Central Europe most of the farms have a really small size: more than 80% of the sheep meat farms are under 2 ESU and produce mainly for themselves. On the contrary, the largest farms are situated in the regions North Sea and Mediterranean. In both regions the heterogeneity in farm size is great. For example in Spain the production is very dispersed, from many small operations to farms with thousands of heads of stock. Farm heterogeneity might have an influence on decision making within cooperatives. The number of sheep meat farms larger than 250 ESU is very limited.

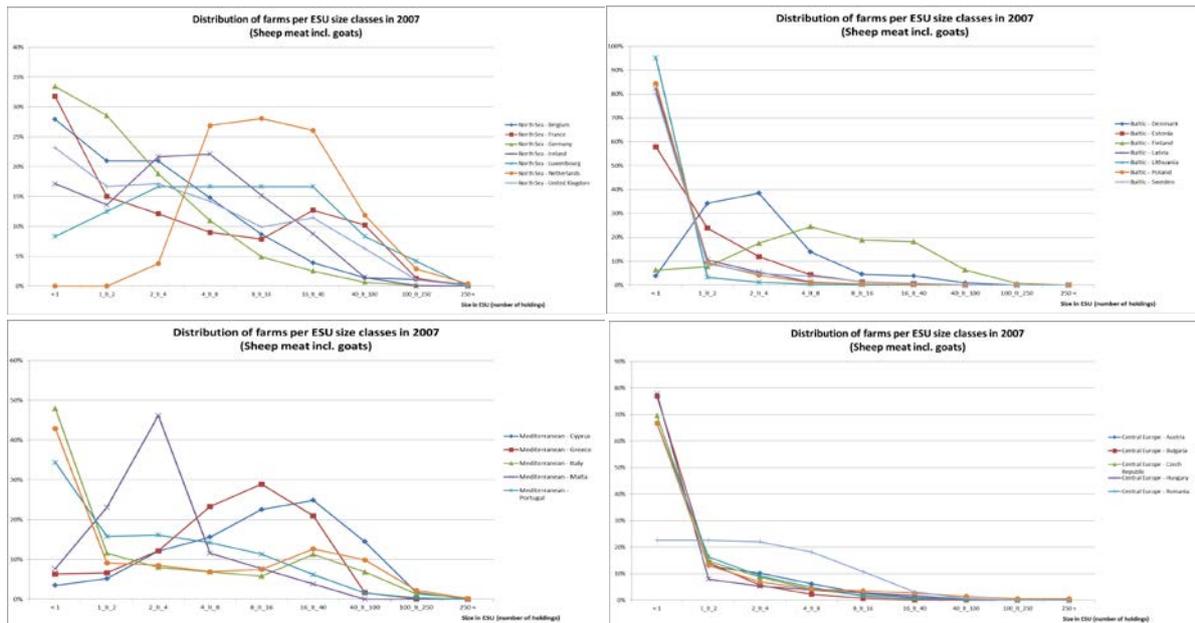


Figure 5 Number of farms per size class, measured in ESU, per specialist type of farming. Source: Eurostat, Farm Structure Survey.

Specialization of farm production

Cooperatives might not only have members with different farm sizes or different age. Farms also have a different composition of their production. This is even true for specialist farms, where e.g. some so called specialized dairy farmers also keep some beef or sheep. Besides a lot of mixed (non-specialized) farms exist. The heterogeneity of farming in terms of specialization can be estimated by calculating the share that specialized farms have in the total production. This is what Figure 6 shows.

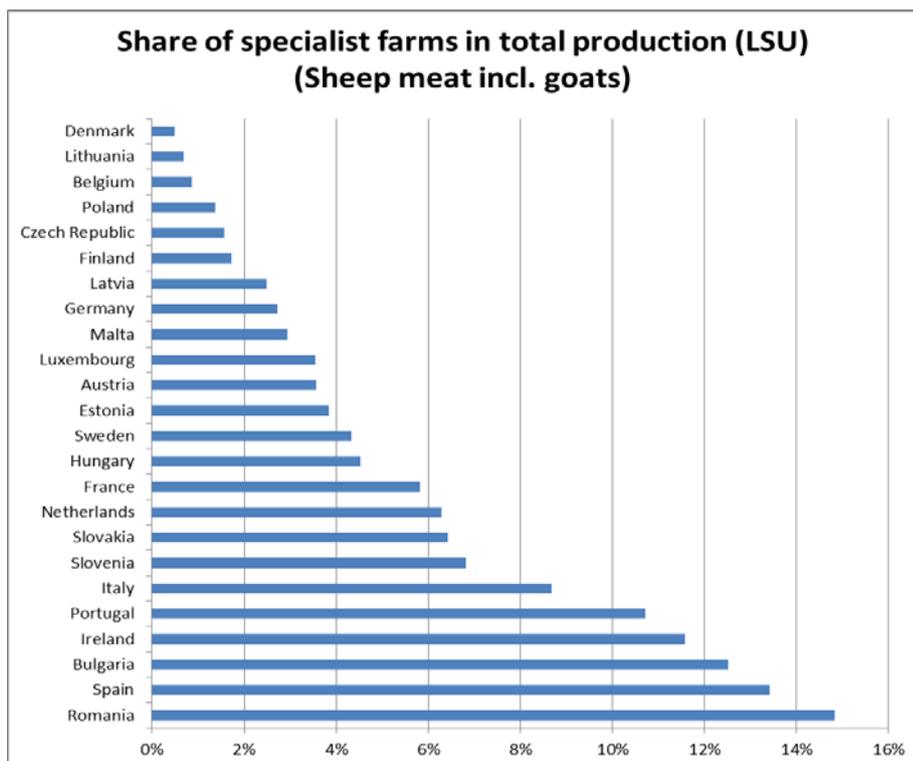


Figure 6 Heterogeneity in farm production: the share of specialist farm types in total production. Source: Economic Accounts of Agriculture, Eurostat.

Figure 6 clearly shows the low degree of specialization in sheep and goat production. In nearly all countries less than 10% of the animals is on specialized farms. Exceptions are the Iberian peninsula, Ireland, Bulgaria and Romania. Especially in the last two countries this is due to the very small size of the farms, were some subsistence farms only have a few sheep. It is fair to conclude that all over Europe sheep are held on mixed farms and the share of specialized sheep meat farms in total production is small.

2.4 Economic indicators of farms

The description of agriculture is concluded with some economic indicators (Table 3). These indicators focus on the net value added and income from farming for farmers, as well as the level of their investment. Some of this investment might be in equity of the cooperatives, but far the most will be in farm assets.

Table 3. Economic indicators for farms, a three year average 2007-2009

Sheep meat	Lithuania	Luxembourg	Latvia	Malta	Netherlands	Austria	Poland	Portugal	Romania	Finland	Sweden	Slovakia	Slovenia	United Kingdom
Economic size - ESU	-	-	4,77	-	50,20	17,70	6,30	11,00	3,25	41,60	-	81,10	7,60	43,13
Total labour input - AWU	-	-	2,33	-	1,57	1,56	1,85	1,58	2,38	1,55	-	16,25	1,39	1,66
Total Utilised Agricultural Area (ha)	-	-	58,99	-	28,10	33,27	21,46	73,03	13,27	49,26	-	590,63	13,22	271,42
Total output €	-	-	20.366	-	127.919	49.997	20.827	17.658	15.162	26.267	-	299.093	10.889	82.879
Farm Net Value Added €	-	-	11.447	-	29.402	28.313	12.481	11.359	7.852	16.447	-	83.708	2.741	41.175
Farm Net Income €	-	-	8.115	-	-484	22.799	9.373	9.824	6.019	7.426	-	-22.282	2.693	24.228
Total assets €	-	-	87.368	-	696.503	426.393	99.150	108.211	39.218	274.898	-	1.035.484	219.010	918.997
Net worth €	-	-	60.846	-	443.713	386.538	94.347	105.444	37.961	210.015	-	953.901	218.024	845.940
Gross Investment €	-	-	8.167	-	8.865	24.831	2.626	2.733	1.104	31.595	-	77.977	9.164	18.115
Net Investment €	-	-	3.833	-	-13.030	9.827	-765	-471	205	15.157	-	-38.266	4.997	2.435
Total subsidies - excl.on investm. €	-	-	15.436	-	10.732	22.230	6.093	8.163	2.290	51.014	-	169.683	6.366	53.899
Farms represented	427	27	553	37	6.820	1.263	12.820	9.457	63.470	493	23	310	6.320	17.553

Sheep meat	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Germany	Greece	Spain	Estonia	France	Hungary	Ireland	Italy
Economic size - ESU	-	2,30	24,70	-	-	35,63	13,20	34,30	6,40	41,77	13,97	10,30	37,00
Total labour input - AWU	-	2,13	1,52	-	-	2,07	1,72	1,38	1,71	1,59	1,65	0,97	1,43
Total Utilised Agricultural Area (ha)	-	10,03	14,54	-	-	144,61	6,03	61,73	75,81	84,82	89,01	43,89	45,57
Total output €	-	8.521	56.107	-	-	58.253	33.922	66.282	19.166	76.302	37.214	14.831	46.956
Farm Net Value Added €	-	4.541	17.946	-	-	43.791	23.075	40.571	12.661	25.234	15.532	12.642	30.375
Farm Net Income €	-	3.178	14.667	-	-	22.748	21.238	35.655	12.673	17.049	10.009	10.719	27.061
Total assets €	-	21.827	223.505	-	-	347.345	77.960	343.178	109.223	253.866	160.818	655.308	327.287
Net worth €	-	20.579	215.475	-	-	257.983	77.440	330.234	93.565	172.064	119.896	649.335	325.697
Gross Investment €	-	409	1.304	-	-	23.507	635	3.093	7.474	16.370	2.755	2.177	2.817
Net Investment €	-	17	-4.164	-	-	7.244	-1.704	-619	4.998	-2.548	-3.032	-2.415	-2.699
Total subsidies - excl.on investm. €	-	1.522	13.977	-	-	63.401	8.870	13.608	12.883	27.504	18.459	17.086	9.420
Farms represented	160	22.470	1.657	107	187	1.080	34.627	33.717	617	18.927	1.787	20.577	31.830

Source: DG Agri, FADN.

The average size (in esu) of the sheep meat farms per member country represented by FADN (a selection of all farms represented by Eurostat, FSS) shows a wide variation see Table 3). The farm net income on sheep meat farms is modest. This is one of the reasons for the small size of the sector. Without subsidies farm net income is negative in a lot of countries. Farmers in Spain gain the highest income, 35.000 euro's. Net investments are small within the EU's specialized farms. The sheep meat sector cannot be characterized as capital intensive. Higher current prices of sheep meat may reduce the number of farmers leaving the industry. Average labour input in all countries is more equal, except Slovakia. It differs from 1 to 3 annual labour units per farm.

3 The evolution and position of cooperatives and their performance

3.1 Description of the food chain issues in the sector

In 2008 the consumption of sheep and goat meat in the EU-27 is only 3% of the total meat consumption in the EU-27 (source: European Commission). The United Kingdom is the biggest European consumer of sheep meat, 374 million ton (see Table 4). The total consumption of sheep meat in Europe is 2,7 kg per capita in 2008 (source: SSP, European Commission). Greeks are the biggest European consumers of sheep meat, 11,1 kg per capita (see Table 5). Other great consumers of sheep meat live in United Kingdom, Ireland, Bulgaria, Spain and France.

Table 4. Consumption of sheep meat (in millions of tons) in the EU, Top ten, 2008

Country	Consumption in millions of tons
United Kingdom	373,8
France	232,1
Spain	170,3
Greece	124,8
Italy	84,4
Germany	79,1
Romania	49,1
Bulgaria	35,4
Netherlands	31,5
Portugal	30,4
Ireland	21,5

Source : European Commission in (www.franceagrimer.fr/informations/publications/F-elevage/09-09-15/ovins-96B.pdf).

Table 5. Consumption of sheep meat in kg per capita in the EU, Top ten, 2008

Country	Consumption per capita in kg
Greece	11,1
United Kingdom	6,1
Ireland	4,9
Bulgaria	4,6
Spain	3,8
France	3,6
Portugal	2,9
Romania	2,3
Netherland	1,9
Belgium-Luxembourg	1,8
Italy	1,4
Austria	1,3
Denmark	1,1

Source: SSP, Commission Europeenne, Douanes in www.franceagrimer.fr/informations/publications/F-elevage/09-09-15/ovins-96B.pdf

Consumption of sheep meat has dropped as a result of lower availability and the relatively high price of sheep meat. Consumers of sheep meat essentially belong to higher age groups, with above-average income. In contrast, the penetration rate of the product and the number of consumers below 35 years of age are considerably smaller. Factors such as consumer age profile, consumer perception and price relative to other proteins significantly affect potential levels of lamb consumption. Are these trends the same all over Europe? The key to securing a sustainable future for the sheepmeat sector will be strategies aimed at recovering consumption levels across the Community (Report European Parliament, 2007/2192 INI, 2008).

In order to generate more lamb consumption, a number of measures need to be adopted. It is recognized that there is a need for innovation in the communication of the message to consumers. The French, Irish and British food promotion agencies are currently conducting a joint generic promotional campaign to increase lamb consumption in France. This may lay the basis for future marketing campaigns in other EU Member States (Report European Parliament, 2007/2192 INI, 2008).

French households make only a bit over 20% of their purchases of lamb in the traditional butchers. Most important places of purchase of sheep meat are the supermarket (28%) and the Hypermarches (37%) (www.franceagrimer.fr/informations/publications/F-elevage/09-09-15/ovins-96B.pdf).

Real changes in the sheep sector with regard to technology, based on genetics and feeding practice are limited compared with the dairy sector. Innovation in product development has the potential to be the key to making sheep meat more attractive to younger generations of consumers.

In Greece, the chain among farmers, slaughterhouses, processing plants, and retailers is not well-developed. Poor market coordination is directly affecting product prices, the main driving factor in determining market share and profitability among the actors of the chain. The future of the Greek sheep sector depends on its capability to respond accordingly to seasonal demand, improve the cooperative spirit throughout the chain and encourage the development of specialized regional, local and niche products like PDO and PGI.

In countries where the sheep meat sector is of little importance, sale of sheep meat is mostly done through farm direct sales in the local market. For example in Czech Republic and Slovenia most of the consumption is covered by household slaughters (home slaughters). In Bulgaria, the percentage of the direct marketing regarding sheep meat has also been high over the years. Between 35-45% of the lamb and other meat is produced in farms and used for local domestic supply. Romania? Consumers prefer such market channels because of lower prices and trust to personally known farmers.

3.2 Performance of coops (market shares, growth, other indicators)

Table 6 shows the turnover of the cooperatives in the member states. The first part of the table contains the figures of cooperatives with sheep meat as core business; the second part shows figures from cooperatives that have sheep meat as a side activity. The cooperatives in the United Kingdom have by far the largest turnover. In 2010 the turnover of the four UK sheep cooperatives counts up to almost 440 million euro.

The second place is for Spanish sheep cooperatives, with a turnover of 83 million euro's. Number three is Hungary (5 million euro).

Table 6. Turnover and number of cooperatives in the sheep meat sector per country

Country	Turnover (in 1.000 euro)		Number of cooperatives
	2000	2010	2010
Cooperatives (sheep meat is the primary activity)			
Czech Republic	84	241	1
Spain	~31.500	82.600	3
Finland	7	36	2
Hungary	n.a.	>5.340	5
Luxembourg	n.a.	n.a.	2
Poland	75	>86	2
Romania	-	12	2
Sweden	n.a.	n.a.	4
United Kingdom	>8.645	439.258	4
Cooperatives sheep meat is a side activity			
Spain	255.232	559.558	4
France	n.a.	498.577	1
Sweden	1.029.958	n.a.	1
United Kingdom	n.a.	16.170	3

n.a. = data not available

3.3 Description of largest farmer's cooperatives in the sector

Table 7. Turnover of cooperatives in the sheep meat sector

Country	Name Cooperative	Turn over (in 1.000 euro)		Number of members
		"2000"	"2010"	"2010"
Cooperatives (sheep meat is primary activity)				
Czech Republic	OVEKO a.s.	84	241	4
Spain	Carnes Oviaragón S.C.L.	27.000	48.129	1.100
Spain	Oviso	4.544	27.000	13
Spain	Dehesas Cordobesas, S.C.A	n.a.	7.500	3
Finland	Loimaan Laatulammasosuuskunta	n.a.	27	18
Finland	Pohjanmaanlammasosuuskunta	7	9	110
Hungary	Juhtenyész? Kft.	n.a.	n.a.	65
Hungary	JuhexportKft.	n.a.	2.448	33
Hungary	Merino Értékesít? Szövetkezet	n.a.	1.332	213
Hungary	Aranysz?r? Juh – Termel?i Csoport Tenyészt? ésÉrtékesít? Szövetkezet	n.a.	814	69
Hungary	Dél-AlföldiJuhászati Beszerz? És Értékesít? Kft.	n.a.	746	64
Luxembourg	Nouvel Abattoir D'esch-Sur-Alzette, Societe Cooperative	n.a.	1.116	n.a.
Luxembourg	Cooperative des Patrons bouchers du Nord	22.332	n.a.	n.a.
Poland	Tatrza?sko – Beskidzka Spó?dzielnia Producentów „Gazdowie”	n.a.	n.a.	160
Poland	Spó?dzielnia Owczarska Ovis	75	86	12
Romania	SOCIETATEA AGRICOLA INDAGROCOMTUR	n.a.	2	n.a.
Romania	MIORITA BENICEANA COOPERATIVA AGRICOLA	n.a.	10	6
Sweden	Vällnora Fårkollektiv Ekonomiskförening	n.a.	n.a.	n.a.
Sweden	Gröna Hagars kött ekonomisk förening	n.a.	n.a.	n.a.
Sweden	Gröna Lammet Ekonomisk förening	n.a.	n.a.	20
Sweden	Lammgårdarna i Bjurbäck Ekonomisk förening	n.a.	n.a.	n.a.
United Kingdom	ANM Group Limited	n.a.	117.42 6	7.576
United Kingdom	Fane Valley Cooperative Society	5.284	266.35 2	1.882
United Kingdom	Pembrokeshire Quality Livestock Limited	3.361	5.272	220
United Kingdom	Yorkshire Farmers Livestock Marketing Limited	n.a.	50.208	285
Cooperatives sheep meat is side activity				
Spain	Arento Grupo Cooperativo Agroalimentario de Aragón S. Coop.	70.421	143.000	114
Spain	Agropecuaria Palentina Sociedad	35.111	54.958	1.780

	Cooperativa Limitada (Agropal)			
Spain	Sociedad Cooperativa Andaluza Ganadera del Valle de los Pedroches – COVAP	149.700	282.600	16.000
Spain	Grupo Avigase	n.a.	79.000	2.000
France	Arterris	n.a.	498.577	21.000
Sweden	Sveriges djurbönderek. För.	1.029.958	n.a.	16.200
United Kingdom	Anglia Quality Meat Association Limited	n.a.	526	803
United Kingdom	Caithness Livestock Breeders Limited	n.a.	4.645	400
United Kingdom	Dungannon and District Cooperative Enterprises Limited	297	10.999	949

Table 7 contains the turnover and the number of members of the cooperatives involved in sheep meat. The most striking conclusion is the enormous variation in size. The smallest cooperatives only have a turnover of some thousands of euro's; the largest ones have a turnover of more than 50 million euros.

The five largest sheep cooperatives with sheep meat as primary (first) activity are listed in table 8. The three most important ones are all UK enterprises, followed by two Spanish ones. It should be noted that the two largest cooperatives besides sheep meat take up turnover from other activities. Fane Valley is also active in dairy processing, red meats, feed compounding, agricultural supplies, and renewable energy (www.fanevalley.co.uk). The core business of ANM Group is livestock marketing and meat processing (also pig meat). ANM is a highly diversified business with interests in the land market, non-agricultural auctions, events and the catering/hospitality industry, in addition to its core agricultural business (www.goanm.co.uk).

Table 8 The largest farmers' cooperatives in the food chain of sheep meat(only coops with sheep meat as primary activity)

	Name of the Cooperative	Country	Turnover 2010 (1.000 euro's)
1	Fane Valley Cooperative Society	UK	266.352
2	ANM Group Limited	UK	117.426
3	Yorkshire Farmers Livestock Marketing Limited	UK	50.208
4	Carnes Oviaragón S.C.L.	ES	48.129
5	Oviso	ES	27.000

Transnational cooperatives

The activity of foreign transnational cooperatives and international cooperatives active in sheep meat are negligible. Hence no further attention is paid on transnational cooperatives.

4 Assessment of developments among cooperatives

4.1 The institutional environment

The greatest cooperatives in sheep meat are located primarily in less favoured areas in the United Kingdom (Scotland, Ireland, Yorkshire) and in Spain (Extremadura, Aragon) (See chapter 3). The reason why cooperatives are prominent in these regions is the high degree of specialization in sheep meat and big heads of stock. Another reason is the great distance to the market in these 'isolated regions'.

4.2 The role of cooperatives in the food chain

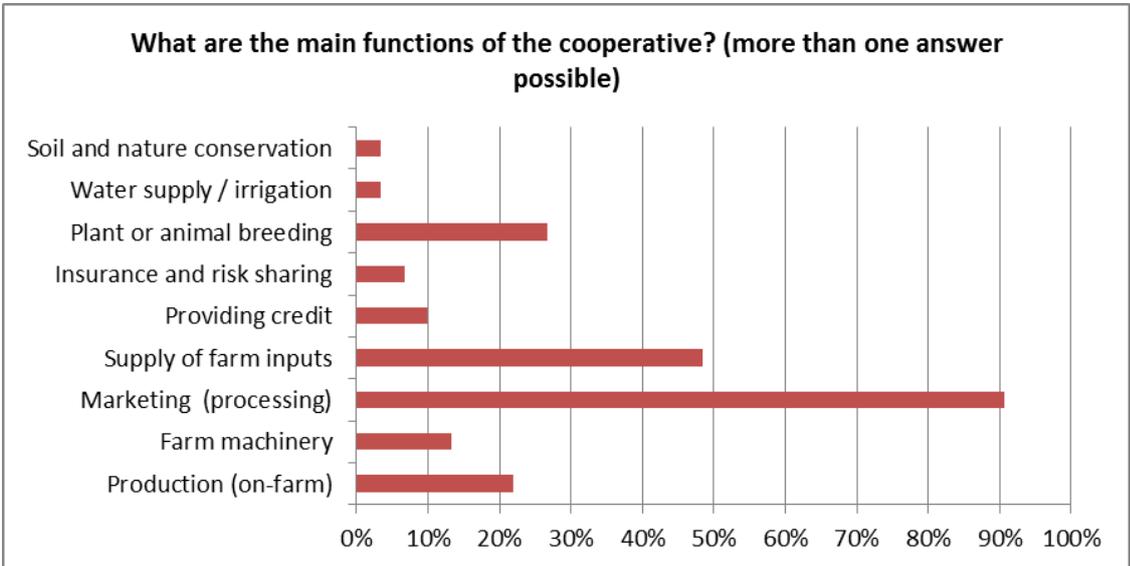


Figure 7 main functions of the cooperative

The main function of far most cooperatives in the sheep sector is slaughtering and marketing (Figure 7). That is not very surprising, since the reason why cooperatives are originally founded was often to solve marketing problems. The risk of market failure is more seen in isolated regions, where the distance to the market is big and where effective trade is hindered because of lack of competition of potential buyers.

In some important European sheep regions this actually seems still to be the case. Examples can be found in Spain, Scotland, Wales. In line with the theory the role of cooperatives in these regions are indeed far more important compared to more accessible and open-market parts of Europe, like France, Germany and the Netherlands.

Over twenty per cent of the cooperatives have developed more or less important side activities, like supply of farm inputs, breeding and on-farm production. The reason for these side functions can be the same as for marketing sheep (market failure). Once a cooperation is founded it is only a small step to broaden the activities. For the members it facilitates the purchasing of farm supplies. Another reason could be simply strengthening the organization by broadening its activities. In this case the base of the main function is used to set up the side activities and to improve the financial results of the cooperative as a whole.

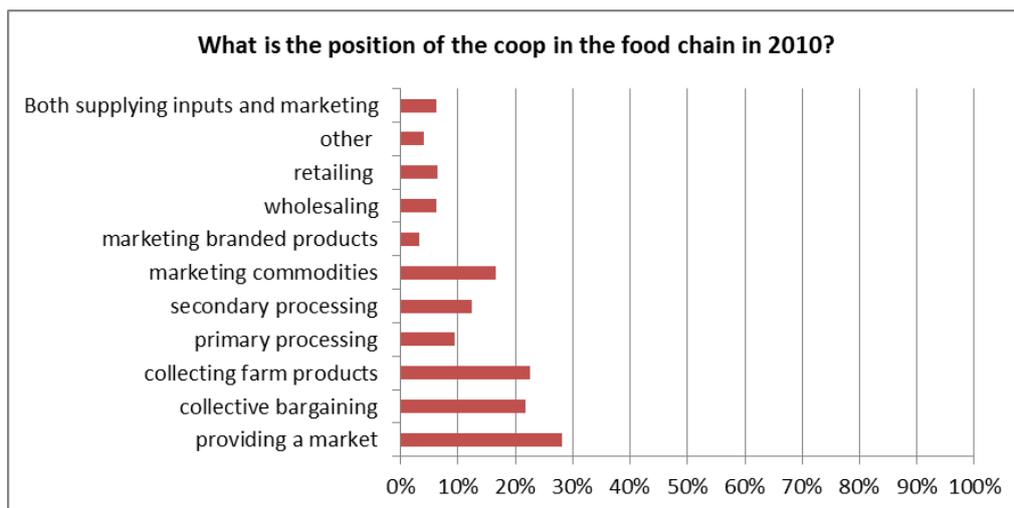


Figure 8 the position of the cooperatives in the food chain

The position of the cooperatives is not always very strong. Figure 8 shows the percentages of cooperatives that have a very relevant position within the whole market for the different functions. The figures are based on the 25 cooperatives with sheep meat as core business.

The strongest position is found in market providing (e.g. auction), collecting the sheep and lambs from the farm and collective bargaining (e.g. a bargaining association). More than 20% of the cooperatives have a very relevant position in the market for these functions. Less cooperatives have a strong position in the field of marketing commodities and processing.

As an example of the functioning of cooperatives in a member state in Western Europe with a large tradition of sheep meat production we will look at Spain.

The Spanish cooperatives in the sheep meat sector are a key element in avoiding the disappearance of this type of livestock operations in many zones of Spain and try to compensate the loss of profitability of the farmers. However the many small operations are a problem for the adequate development in the sector. As a result the sector is going through a profound process of cooperative integration with the creation of second level cooperatives and other cases of cooperative mergers. This process was done under the impetus of Royal Decree 104/2008 that established aid for groupings of producers.

The cooperatives which produce lamb have changed drastically their path and have improved production, consumer orientation and increased the processes of collaboration between cooperatives to access markets. In addition much R&D in adapting to consumer demands has been carried out.

Given that one of the principle problems of the sector is the decline in consumption, measures must be taken to increase demand. This could be achieved by extending both production and demand to cover more seasons so as to minimize profound price fluctuations.

The strengths of the sector lie in flexibility (animals can graze in many places) with a need for little infrastructure, the high quality of meat and the high number of autochthonous breeds (MARM, 2009).

Challenges for the cooperatives are the lack of structures and channels of commercialization, decrease in demand, high prices of animal feed, aging farmers and difficulty in finding workers, competition with other EU member states with more sector subsidies (national subsidies or greater use of EU funds?) and third countries with lower costs, lack of promotion of the sector (Union of AgCoop, Castilla-La Mancha, 2008).

The sector proposed that operations must be larger and more specialized. More producer groups that develop vertically and that increase efficiencies and there should be a favouring of long term agreements between distributors and producer cooperatives. The sector thinks that the product should be identified with Spain and with traditional foods. As well there should be the development of aid linked to agro-environmental issues and pastures and publicity to increase consumption and exportation, reduction of seasonality. On the human resources side, there should be an emphasis on incorporating youth and also the proper training of qualified butchers and in the preparation of prepared product to meet consumer demand. Support for developing consumption in the restaurant and hotel sector is also important.

The size of the Spanish cooperatives is considerable; the average turnover is about 28 million euro's. All three cooperatives concentrate themselves on marketing. Other functions, such as farm input supply are clearly of minor importance. Farmers can relatively easy get access to the cooperatives. If they decide to be a member they are bound to deliver their sheep to the cooperative. Only one of the three cooperatives also trades sheep of non-member farms.

A quite other situation is found in Eastern Europe. In Hungary five cooperatives started in the years 2003-2005. That is why we will take a closer look at the Hungarian situation.

The number sheep was 1.2 million in 2009 which was a little bit lower than the year before. In December 2010 that number was 1.18 million. Apart from technological and genetics problems, the main reasons of the decrease are the lower profitability, decrease income supports, the minimal level of domestic consumption, the lack of Hungarian processing capacity, the dominancy of the Italian market and the fact that farmers are getting older. Because of the decrease, the bought-up number of sheep decreased as well to 317,000 pieces which is a 3% change from the previous year. Most of the lambs are produced for export. The export of live lambs has not changed significantly compared to 2009. However, the share of Italy has grown by 1% to 90%. Share of other target countries are very small to the Italian, however Turkey is a new buyer on the Hungarian market since they only could buy from Hungary regarding the EU?. Because of limited supply of the sheep meat production countries the price is higher a little bit than in 2009 (Stummer, 2011).

According to Kapronczai (2010) there were no real changes in the last 50 years in technology, basis of genetics and fed-up practice in sheep sector. When there was an increase in the number sheep it was only external growth. However, the continuous, and from '90-ies dramatic decrease has not accompanied with the development of the genetics bases.

The cooperatives have a considerable share in the Hungarian sheep meat market of almost 20% (2008). The size of the cooperatives is relatively small; the average turnover is about 2 million euro's. All five cooperatives are busy with marketing and supplying farm inputs. Besides that three cooperatives are occupied with breeding sheep and two give education or advice. Farmers can easily get access to the cooperatives. If they decide to be a member they are bound to deliver their sheep to the cooperative. Four of the five cooperatives also trade sheep of non-members.

4.3 Internal Governance

To discuss the internal governance we will look again at the Spanish and the Hungarian cooperatives (See also section 4.2 and Table 9).

Table 9. Comparison of cooperatives in sheep meat between Spain and Hungary

	Spain	Hungary
Average turnover (x 1000 euro)	28.000	2.000
Functions		
<i>Marketing</i>	3/3	5/5
<i>Farm input supply</i>	1/3	5/5
<i>Providing credits</i>	1/3	0/5
<i>Breeding</i>	0/3	3/5
<i>Soil & nature</i>	1/3	0/5
Other services	2/3	2/5
<i>Education</i>	2/3	0/5
<i>Social security</i>		
Membership		
<i>Access</i>		
<i>Trading with non-member farmers possible</i>	Relatively easy 1/3	Very easy 4/5
Management		
<i>Board of Directors (BoD)</i>	only members (3/3)	Only members (1/2)
<i>Operational management</i>	professionals (3/3)	BoD (4/5)
Members		
<i>Colpulsory deliverance</i>	3/3	5/5
<i>Specialization degree of farms</i>	High	medium
Marketing		
<i>Using multiple tools</i>	3/3	1/5

Spain, as an example of the 'old' EU-member states counts three specialized sheep cooperatives. The cooperatives manage to give a suitable answer to the local challenges in the sheep market. The Boards of Directors consist of only members of the cooperatives, but the actual operational management is done by professionals. There is however no supervisory committee. The position is in general relatively strong on the fields of market providing, (secondary) processing and wholesaling. The three cooperatives show a wide range of different marketing strategies. The most important growth strategy is horizontal merging and acquisition. Summarizing it can be stated that the Spanish cooperatives aim at professional governance.

Hungary is an example of the 'new' member states. In this country the cooperatives have obviously wider functions as the Spanish. In the board of directors at least one of the cooperatives has besides members also a seat for a professional. The operational management is being conducted by members; only one cooperative has a professional manager. All cooperatives have a supervisory committee, also consisting of only members.

The cooperatives have strong positions on market providing, collective bargaining and collecting farm products. Processing is hardly of any importance. The most important marketing strategy is cost leadership, providing only a narrow range of products. The only growth strategy is autonomous growth of the cooperative.

Compared to the Spanish situation the Hungarian cooperatives are smaller in turnover and far less complicated. That's why they have less need for professionalization on the short term. Nevertheless they have built up a 20% market share. If they manage to enlarge their market share and to widen their activities they might need a more professional organization, especially at operational level.

4.4 Expert assessment of developments

The position of cooperatives in the sheep meat sector is limited. The main function of far most cooperatives in the sheep sector is slaughtering and marketing. The position of the meat manufacturing industry is poor. Reasons are a lot of small (part-time), mixed farms especially in the new member states in Central Europe, limited and declining consumption of sheep meat, direct sales and slaughtering on local markets. Farm incomes in the sheep and goat sectors are amongst the lowest in the agricultural industry. Farmers' capital to invest in cooperatives is limited. As long as there are many traders interested in buying sheep, there does not seem to be a need for a cooperative that probably would have the same problems as in the other meat sectors: the lack of control of supplies in times of high prices. The risk of market failure is more seen in isolated regions, where the distance to the market is big and where effective trade is hindered because of lack of competition by potential traders. In line with the theory the role of cooperatives in these regions is indeed far more important compared to more accessible and open-market parts of Europe, like France, Germany and the Netherlands.

In Spain and the United Kingdom, the two biggest producers of sheep meat, cooperatives are successful in production and meat processing. They are well organized in less favoured areas as Scotland, Ireland, Yorkshire, Extremadura and Aragon. The cooperatives are a key element in avoiding the disappearance of this type of livestock operations in many zones and compensate the loss of profitability of the farmers.

In Spain the structural decline in the production of sheep has significantly accelerated since the 2003 CAP reform. As a result the sector is going through a profound process of cooperative integration with the creation of second level cooperatives and other cases of cooperative mergers. This process was done under the impetus of Royal Decree 104/2008 that established aid for groupings of producers. The sector proposed that operations must be larger and more specialized. More producer groups that develop vertically and that increase efficiencies and there should be a favouring of long term agreements between distributors and producer cooperatives. The product should be identified with Spain and with traditional foods and there should be an emphasis on incorporating youth and also the proper training of qualified butchers and in the preparation of prepared product to meet consumer demand.

As an example of new business, OVISO, the second cooperative of sheep meat in Spain, commercialises its lamb carcasses in the national and the EU market under its own two brands: CORDEHESA - and CORSERENA (www.oviso.org).

The recent initiatives in Spain and the United Kingdom provide examples for cooperatives in other countries to develop the market of sheep meat. Emphasis should lie on the convenience, quality and health aspects of the product. For example in Poland there are some attempts aimed at specific market niches. The cooperatives have a considerable share in the Hungarian sheep meat market of almost 20% (2008). The size of the Hungarian cooperatives is relatively small. The cooperatives are busy with marketing and supplying farm inputs. Farmers can easily get access to the cooperatives. A point of attention is the heterogeneity in farm size (a lot of small farms and some big farms). Strategy of small farms is direct sales and slaughtering on local markets, getting cash immediately. This could be a real obstacle to the development of market oriented cooperatives in the new member states.

5 Overview of policy measures and assessment of the influence of policy measures on the evolution and current position of cooperatives

5.1 Introduction

The performance of cooperatives (including producer organizations) is influenced by the regulatory framework. This framework is multi-level: EU regulations, national laws and –in some countries- even regional policies influence the way cooperatives can operate. In this chapter we look especially at the regulatory framework that influences the competitive position of the cooperative versus the investor-owned firm (IOF) and the regulations that influence the competitive position of the cooperative versus other players in the food chain.

The objective of this chapter - is to identify support measures that have proved to be useful to support farmers' cooperatives. In section 5.2 the relevant policy measures and their potential impact in sheep meat are identified. In section 5.3 an assessment of the policy measures is given.

5.2 Overview of regulatory framework including fiscal and competition issues

The long-term sustainability of sheep and goat production in the EU on a professional scale is under threat. Despite a production deficit of sheep meat in the EU, the sheep flock continues to fall and the demand is weak. The last CAP Reform 2003, introducing the decoupling of direct payments has accelerated the contraction of the sheep and goat sectors. Sheep and goats are located primarily in less favoured areas and play a critical environmental role in the natural upkeep of these areas as well as making a socio-economic contribution to disadvantages areas. Many producers are exiting the sheep and goat sectors due to economic difficulties, high labour requirements and an older age profile. The Committee on Agriculture and Rural Development has called for action should be taken at EU level to safeguard the sheep and goat sectors. A possibility is the setting up of an EU implementation task force to ensure that the specific measures recommended are enacted over the next two years, thereby securing the future of the sheep and goat sectors in Europe (Committee on Agriculture and Rural Development, 2008).

The table below identifies the policy measures that influence the competitive position of the cooperative versus the investor-owned firm (IOF) or the competitive position of the cooperative versus other players in the food chain.

From the country reports we conclude that Spain and the Czech Republic are the only countries in Europe with policy measures especially for the sheep meat sector. In Spain, the government has chosen inducement as a policy measure type (See Table 10). The regulatory objective is correction of market or regulatory failures and attainment of social goals by the concession of subsidies to groupings of producers.

Table 10. Most relevant policy measures and especially analysis of regulations, fiscal and other types of support specific to the sector

Policy Measure Name	Policy Measure Type	Regulatory Objective	Policy target	Expert comment on effects on development of the cooperative
Spain: Royal Decree 104/2008, 1 of February, which established the regulatory bases for the concession of subsidies to groupings of producers in the sheep and goat sector	2. Inducement. Financial incentives	1. Correction of market or regulatory failures 2. Attainment of equity or social goals	2. Specific to an agricultural subsector	-Establishment of the regulatory bases for the concession of subsidies, subject to a competition , to promote the reform and adaptation of the sheep and goat sector during the 2008-2012 period through the grouping of producers . The adoption of such measures in this sector is advisable in order to avoid the decline in the farming activities. Groupings of livestock keepers are an ideal method of reform and adaptation as it is the most efficient form to organize the offer.
Spain: Resolution of 8 April 2011, of the General Management of Agricultural Productions, providing for convocations of subsidies for the groupings of producers in the sheep and goat sector of Castilla-La Mancha in 2011	2. Inducement. Financial and other incentives	2. Attainment of equity or social goals	2. Specific to an agricultural subsector	-The object of this resolution is the carrying out of a convocation for 2011, in a competitive process, of subsidies for the promotion of the reform and integral suitability of the sheep and goat sectors through the grouping of producers, in the framework of the base regulations of these subsidies approved by Royal Decree 104/2008 of the 1 of February (which established the regulatory basis for the concession of subsidies for such action) and by the local Ministry of Agriculture for Castilla La Mancha by Order of 20/05/2008 for the such activity. -The subsidised investments must follow one of the following priority objectives: the reduction of production costs, the improvement of the reorientation of production; the improvement of quality; the preservation and improvement of the natural environment; or the improvement of the conditions of animal health and well being. -Beneficiaries may be: groupings of producers in the sheep and goat sector located in the autonomous community of Castilla La Mancha, which meet the relevant requirements of the Resolution.

The Spanish assessment score of the policy measures Royal Decree 104/2008 is +1 and for the Resolution of 8 April 2011 is +2. So the conclusion is that the subsidies on grouping of producers are successful. Royal Decree 1615/2007 of the 7 of December (BOE 20 Dec.) established the

bases upon which to grant subsidies to encourage the production of quality agro-food animal products and has resulted in many cooperatives increasing the number of members due to the fact that the concentration of offer has resulted in more price stability and a stronger presence in the market. The restructuring of the sector has decreased the number of operations but increased the size of those that continue in production (Alimarket, June 2, 2011).

In the Czech Republic the sheep and goat branch shows low importance in the domestic meat consumption, however, the value of sheep and goat herd takes effect in its positive influence on landscape maintenance and marginal regions' utilization. Due to these functions, the government allocates money to the sector. An extra rate on every ewe unit is paid in the form of domestic Top-Up payment, supplementing the SAPS system. This makes sheep farmers better off, it not necessarily improves the role of cooperatives.

5.3 Expert assessment of impact of policy measures

Sheep farming is influenced by CAP. As it is often in less favoured areas, the LFA and Rural Development programs are very relevant for sheep farming. The last CAP Reform 2003, introducing the decoupling of direct payments has led to contraction in production. The declining production affects in a direct way the regional economic activities and could lead to certain negative environmental, economic and social effects. So the liveability of certain isolated regions comes into play. Therefore sometimes there are national top ups (see Czech Republic) or environmental programs that support sheep farming, not necessarily cooperatives. Rural Development policies like LEADER have incentives for farmers to organise themselves in cooperatives or develop e.g. regional branding. Dependent on regional circumstances, the need for foundation of new cooperatives differs.

In many regions cooperatives have a low market share due to direct sales to butchers / slaughterhouses, cattle markets and traders of live animals. Branding and marketing of sheep meat, improving genetics etcetera is difficult. So, facilitating growth and professionalization (see Hungary) could make sense. As we can learn from Chapter 4, cooperatives can be a solution in case of market failure in isolated areas, like in Spain and the United Kingdom. In these member states the cooperatives are large and focused on a relevant food chain strategy.

REFERENCES

- Alimarket (2010). "La carne de ovino toca fondo". October 20, 2010.
- Alimarket (2011). "Carne de porcino, concentraciónforzosa". April 18, 2011.
- Committee on Agriculture and Rural Development (2008). Report on the future of the sheep/lamb and goat sector in Europe, Report European Parlement 2007/2192 INI.A6-0196/2008.
- FAO (2010). Food Outlook November 2010. Website: www.fao.org.
- Kapronczai (2010). A magyar agrárgazdaság adatai a 2010. évi csatlakozás után. Agrárgazdasági Információk, AKI, Budapest, 2010. 12.sz. 185 p.
- MARM (2009). "Caracterización del sector ovino y Caprino en España". [on line] http://www.marm.es/app/vocwai/documentos/Adjuntos_AreaPublica/Caracterizaci%C3%B3n%20del%20sector%20ovino%20y%20caprino%20en%20Espa%C3%B1a.pdf
- Stummer (2011). A fontosabb termékpályák 2010. évi piacifolyamatai. AKI, Agrárgazdasági Információk, 2011. 1.sz.
- Union of AgCoop, Castilla-La Mancha (2008)

Websites:

www.franceagrimer.fr/informations/publications/F-elevage/09-09-15/ovins-96B.pdf

www.fanevalley.co.uk

www.goanm.co.uk

www.oviso.org