

Livestock keeper a profession menaced by modernization

by

*Nuno Vicente**, *Manuel Belo Moreira** and *Inocência Seita Coelho***

1. Introduction

This paper has two main concurrent goals. One aims to provide a systematic understanding of the changing characteristics of the livestock keeper profession and functions¹ and the other, essentially empirical, gives a description of a case study of extensive grazing systems on the Southern Portugal. Therefore we will propose a framework to highlight the driven forces of the reported changes using the Portuguese case as an illustration. That is, we will seek to identify the driven forces that provoke the changes as well as the logic that is underneath its interconnections. This will oblige to consider each case (that could be a country or a region) situated in its precise historical socio-economic and cultural context that directly or indirectly influence the profession. This will be presented on section 2.

Section 3 starts with a brief characterization of the area where the empirical study was made as well as provides a short description of the main characteristics of these professions in Portugal at the beginning of the XX century that will serve to highlight the deep changes that guard and extensive livestock herd management had suffered along this period, comparing it with the current situation. This description is important because it highlights the importance of the changes on the one hand, and because it allows to call the attention to the extremely high differences that can be noticed inside a particular country such as Portugal, which suggest that they can be generalized when a cross-country comparison is made, even if this is out of the purposes of this paper².

In section 4 we will highlight recent changes illustrated by the panorama of the different situations founded on expert knowledge and on a survey to farmers and livestock keepers.

Finally, in section 5, we will draw some conclusive remarks.

2. The determinants of change

In this section a framework will be proposed to approach change on extensive grazing systems (EGS), focusing particularly on the changes that originate deep transformations on the livestock keeper profession. This framework seeks to identify the main forces that provoke changes on extensive grazing systems (EGS)³, and seek to provide an explanation of the main interconnections between them and to identify the driven forces of the process. This framework situates the systems in its precise historical, political, socio-economic and cultural context, which is necessary to

* Instituto Superior de Agronomia/Technical University of Lisbon.

** INIAP – Ministry of Agriculture and Fisheries

¹ This broad designation covers the different professions developed by the work force that assure the guard and the herd management of extensive livestock production.

² We were stroke by the fact that trying to organize the references about shepherds we make appeal to an Australian friend and obtained as an answer that no such thing exists any more in Australia that could be described as a shepherd. What is similar to that profession are workers or livestock owners that maintain the surveillance of their herds with the aid of four-wheel drive vehicles or by helicopters.

³ For extensive livestock (or grazing) systems we mean production systems, in which the majority of livestock needs, along the year, are satisfied by natural grazing resources (Crespo, 2003).

understand the relevance of the particular determinants that directly or indirectly influence the professions involved on these (EGS). To facilitate a schematic overview of the referred interconnections it is useful to have a look at the Diagram 1.

Diagram 1 aims to be an aid for reasoning and should be not considered as a fixed scheme or even less a deterministic one. In this Diagram arrows do not represent obligatory and exclusive causal relations, but instead only pretend to show the direction of the most important influences affecting management decisions on the extensive livestock systems. It seeks in particular to represent cases of EGS based on salaried relations between the farmer or the livestock owner and the livestock keeper as it is in the Portuguese case that serves as illustration. If one wants to address the particular case of family farmer or own account pastoralist has to erase or qualify some of the mentioned influences, namely the ones that make appeal to the wage level.

Considering the historical, socio-economic and cultural context is vital, since many extensive livestock systems are intrinsically linked to historical and cultural patterns that are clearly beyond the strict economic rationality that prevails and is determinant in the industrial countries. That is, the first central box of the Diagram 1 remind us that the overall context constitutes the essential background needed to understand not only the existing differences from country to country but also the sense and direction of the movements of change.

Appealing to the overall context box means to pay attention to a number of features that characterize a particular country, region or society. Focusing on democratic capitalist societies it seems obvious that the type of the political organization and its forms of legitimation influence policies and the degree of socio-economic development (measured by the structure of GDP) as well as the importance of the state intervention, but it goes beyond this level, involving other features such as:

- the weight of market driven regulations and the type and importance of public goods policy;
- heritage and other propriety rights;
- the openness of the economy to international trade;
- the role of working unions;
- the type of education system and R&D policies;
- the type of social policies (health, social security);
- the importance of environmental considerations on the economy and the society;

The overall context is essential to understand the general socio-economic orientation of each particular country, in particular policy determination and what are the socially acceptable living conditions of the population and the working people. However, especially in this global age if we want to understand the path of evolution we need also to include global variables on the analysis, namely of the international trade and its forms of regulation

After these background considerations our thesis is that in market oriented industrial countries there are two first level determinants of change and one secondary level.

The first level determinants are the **market forces** and the **personal features** either of the decision-maker or of the livestock keeper.

For market forces we mean the mix of market development, institutions and regulations that determine the market signals (market driven or administrative prices, subsidies, taxes, ...) transmitted to the economic agents.

Market signals through the level of prices, wage rates, land rent and input costs constitute an obvious determinant feature of the profitability of livestock production and of the profitability differentiation between the different livestock production orientation.

On the other hand market signals are very important conditioning, among other things: the use of the existing alternatives among the available technologies; the decisions about what type of breed will be target for production, as well as the decision to enter, continue, intensify, extensify or abandon livestock production.

The other first level determinant comes from the personal characteristics of the livestock keepers and of the decision-makers, usually the livestock owners. These personal characteristics rely heavily on the overall context, but also depend on the specific types of general (educational) and agricultural policies (extension and training).

The available technologies are considered as a second level determinant due to three main reasons: (1) because they are strongly influenced by market signals, (2) because available technologies and technological development is intimately linked to the institutions involved on the process (Summers 1983), and (3) because they also greatly depend on the specific ecological conditions of a particular region.

The importance of the available technologies for extensive grazing systems can be measured by the adoption of an old technology, fencing. Nowadays, fencing is much more a mean to assure a work saving pasture and herd management than the primordial guarding function that it had in the past. But this technology also illustrate that when we mean available we should understand that there are not only enough knowledge to adopt it, but also that other historic, economic and social conditions are ripped to adopt it, which is not the case for fences in many environments.

Returning to Diagram 1 the box of the available technologies shows the cross influences of market signals and policies. In fact the research and development process of a new technology result in most cases from clearly identified goal-oriented projects aimed to particularly vested interests⁴ and not from a side effect of scientific development. Goal-oriented projects that are greatly dependent on market signals and on the functioning of the institutions that produce it, either public or private.

Finally, the dependence of agricultural technologies on the ecological conditions are so obvious that does not need further explanation.

Considering what has been described above each livestock owner take his management decisions about the type of livestock production, that is the choice of breeds, the level of production intensity, feeding alternatives, and so on, based essentially on market and technological determinants. Management decisions that also need to integrate other two features: the decision maker management skills that go beyond personal characteristics to integrate education, training and extension conditions (in the boarder sense including advisory and consultative services) that depend indirectly from the overall context and from the agricultural policies, and a frequently forgotten aspect, the decision maker economic logic. This last needs further explanation.

Considering the economic logic means that the decision maker is not a computer reacting solely to market signals, but he is a social actor embedded on a society that influences his decisions. That is, the decision maker does not have to follow any kind of predetermined economic behaviour, such as maximizing profits, but on the contrary, decision makers can have a wide range of behaviours some of them are quiet at odds with the profit maximization paradigm. In the Portuguese case we can easily identify

⁴ As Friedland (1984) exemplifies with the bias on research funding at the University of California in Davies favoring exclusively large capitalist farmers and no research funds being devoted to develop technologies to small family farms.

two different broad types of behaviour among farmers that keep a salaried relation with the work force: on the one side we can find the more typical capitalist that innovates and invest, but we can also find the latifundist rentist logic that is extremely risk averse and seek to minimize costs and management efforts even suspecting that the final result he will get is much inferior to the one it could be expected⁵. This situation is economically understandable because these rentist type of decision maker can count not only from out-farm income, but essentially on large areas, meaning that lower profits per hectare could mean an overall profit that is considered enough compensating for his management time and risk. We voluntarily exclude from this reasoning the question of family farming since our examples come mainly from the salaried farms, however, it must be stressed that family farming also have its own economic logic that differs from the typical capitalist or from the rentist logic⁶.

But extensive livestock production does not depend only on market signals, on the characteristics of the decision-maker, and on the available technologies. It depends also on the accessibility to financial resources and quota rights, as well as on the feeding resources available and to the possibilities to have access to them, which is highly dependent on the existence of common pastures or on the possibility to acquire pastures, to rent land or to acquire the rights to graze cereal stubble. That is, yearlong feed resources management does not depend only on own resources but also on out-farm resources, which is greatly influenced by the propriety rights, and by the alternative uses that landowners are willing to give to their proprieties. Aspects greatly dependent on the overall context and on particular policies that change from country to country.

Finally, extensive grazing systems greatly depend on the ways that livestock owners and livestock keepers interpret market signals. These perceptions have a common ground resulting from the relations between farm infrastructures the working conditions and work availability. Livestock owners' decision to improve or not improve farm infrastructures, having obvious reflects on the working conditions, depend greatly on the available work force and its wage rates and other types of payment. These aspects depend greatly on the livestock keepers personal features, on the social acceptable living conditions, the alternative employments opportunities as well as on the social and professional status of his activity

Using this framework is then possible to have a systematic approach to the extensive grazing systems linking economic to historical, social and cultural aspects that, on the way or another, greatly influence the direction of the changing paths.

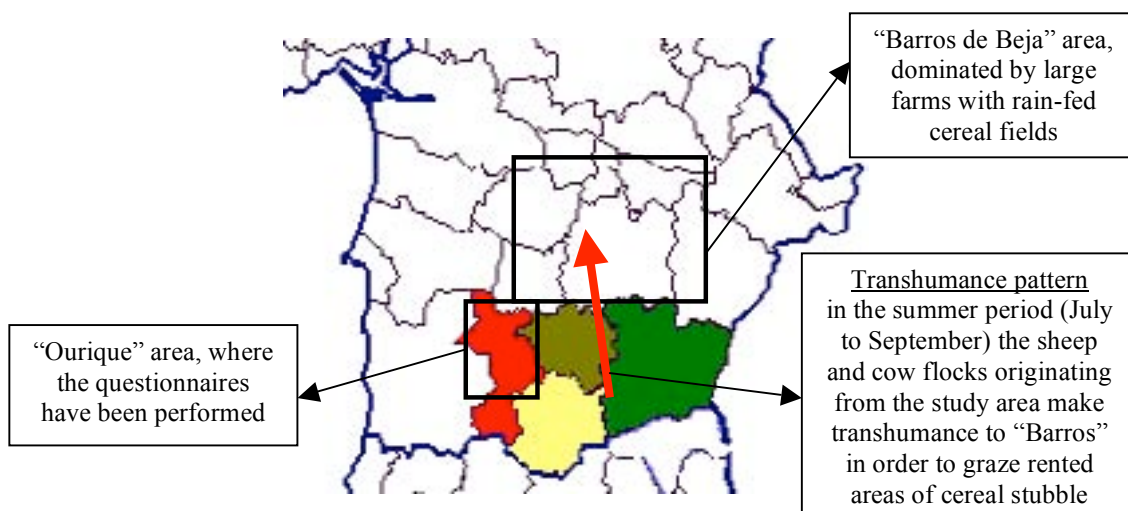
⁵ Baptista (1993) shows the evolution of the traditional latifundia of southern Portugal through a bifurcation that distinguishes the modern capitalist farms and the risk averse latifundists..

⁶ It is well known the extensive literature on the economic logic of family farm to allow us to skip presenting relevant references.

3. Case Study: extensive livestock systems of the South of Portugal

3.1. Characterization of the study area and Historical overview

3.1.1. Short description of the territory



Map1 – Map of the study area⁷

Southern Alentejo hinterland is characterized by an intensive and old humanization. The resulting character of its landscape is therefore highly use-dependent. In fact, a natural landscape that should be dominated by more or less dry forests of *Quercus* was progressively replaced by an extensive mosaic of open arable fields of rain fed cereal or extensive pastures and park like more or less open formations of *Quercus suber* or *Quercus rotundifoliae* – the “Montados”⁸. In areas of rock or in abandoned agricultural areas a more or less developed shrub cover develops dominated by *Cistus* species. Only occasionally can some Mediterranean temporary ponds or more or less perennial rivers be found.

“Campo Branco” is the central part of the study area and considered presently as a rural territory with high environmental value (protected under EU Birds Directive and Natura 2000 network). This area (mostly located in the municipalities of Castro Verde and Mértola), but also the surrounding ones (like most of the municipalities of Ourique and Almodôvar), represents an edaphoclimatic and economic situation that is common to many areas in southern Portugal. Its climatic (very harsh Mediterranean climatic features, meaning average annual temperature of 16.1°C with relatively cold winters concentrating most of the average 450-600 mm/year rainfall, and very hot summers with long rainless periods) and soil conditions (predominantly very poor and shallow dominant schistic soils) were never suited for intensive agriculture, because of the very limited water and nutrient availability. Nevertheless the relief is very soft and plane, this region being a wide plateau with maximum height of 300m.

⁷ The shaded area represents the Portuguese study area in the context of the UE project LACOPE_EVK2-2001-00259; from west to east this includes the municipalities of Ourique, Castro Verde, Almodôvar and Mértola.

⁸ Typical Iberian agro-forestry-grazing systems that in Spain is known by “DEHESAS”.

Therefore extensive land use systems were always the dominant in the region (already since the roman colonization), also very related to the large dimension of the private land property and to the economic logic of the landowners. These extensive systems combined cereal production in a more or less long rotation with grazing (of the stubbles or the fallows).

3.1.2. Historic overview of extensive livestock production and its actors

These extensive grazing systems were structured for centuries in order to take advantage of the natural resources typical of these Mediterranean areas, and relevant literature shows the importance that they always had in the south of Portugal⁹. In a first phase, until the XIXth century, these systems were based on the mobility of the herds through transhumance, either in the case of communal (*aduas*) or of private herds. This was possible because of the importance communal land had at the time, namely the possibility use of common pastures in specific times of the year (*compáscuo*)¹⁰. According with the above-mentioned literature, these systems used undifferentiated labor force, with low training, without a hierarchy of functions and performing mainly routine indiferentiated tasks, essentially keeping and conducting the herd from pasture to pasture. These livestock keepers got very low wages and had extremely poor living conditions representing the lower layer on the social pyramid. In fact, their particular skills and expertise obtained by trial and error and usually orally transmitted was not recognized, and therefore not rewarded.

Along with the transition from the Ancient regime to the Liberal regime (from the XVIIIth to first half of the XIXth century) the full consolidation of individual propriety rights regime brought along the end of the different forms of common propriety and rights of passing. The establishment of private *latifundia* in the south of Portugal brought along a change in the dominant type of extensive livestock system: the transhumance patterns were reduced and a more localized type of grazing system was established relying primarily on internal mobility inside the “new” estates, or recurring to forms of small distance transhumance to other properties in summertime. This transhumance aimed at taking advantage of the post harvest resources on the cereal fields (straws and stubbles) against the payment of a fee for having the right to graze these feed resources on a time of the year of great scarcity. This more localized extensive livestock system implied a greater differentiation of tasks, and consequently of the functions performed by the livestock keepers (namely the shepherds), as well as a more intense labor use.

This extensive livestock system prevailed almost unchanged from the XIXth century until the beginning of the sixties, when it entered into a crisis that was detonated by the claim for better working conditions, namely the struggle of agricultural workers for better wages and an eight-hour journey. This was followed by the rapid growth of the agricultural and rural population exodus, taking advantage of the increasing labor demand from more dynamic sectors of Portuguese economy as well as from rich European countries that hosted the large contingents of Portuguese emigration. Consequently agricultural wages increased, substantial areas of agricultural land have been abandoned and the “old” extensive livestock system based on intensive labor started to be replaced by more mechanized livestock systems based in less labor-

⁹ Conde de Ficallho (1899) and Silbert (1966).

¹⁰ Ribeiro (1941), Martinho (1978), Lourenço (1981) and Pascual (2001).

intensive working processes. This change brought along the emergence of a new type of livestock keeper, more polyvalent and able to perform all types of tasks besides just keeping the animals. At the same time the “old” keepers (namely shepherds) still play an important role in many farms but now obtain better wages, have better living conditions and we have the feeling that their social status does not show the same lag to other professions that used to have.

3.1.2.1. Functional and wage differentiation in the salaried livestock keeping activities

On the XIXth century an author described that “*Being a shepherd means having a peculiar profession that lasts for a whole life (...) In Serpa I know families in which all men, with rare exceptions, are shepherds for successive generations*” (Conde de Ficalho, 1899). This author praised the shepherds from Alentejo, considering them good workers, smart and knowledgeable of livestock needs, of how to conduct the animals in order to achieve an optimal use of pastures, and of how to protect them in harsh times.

This expertise, the growing livestock numbers and the more localized grazing system induced a functional differentiation in the livestock keepers. The main criteria for the division in different herds made by the livestock owner were the type of livestock, the gender and the age group to which animals belonged. This shows that it was recognized that the different groups of animals had different needs for feed and care, and that they grazed differently. Each different type of herd had different persons in charge of particular functions, either in a permanent or seasonal basis, receiving each function their own designation. This led to a large number of professional designations that will not be translated that feed popular knowledge and culture, even nowadays. A short description is presented in the table 1 below based on (Picão, 1903; Caldas, 1903).

Type of livestock	Adult Males	Reproductive females	Dairy females	Non-reproductive females	Fattening animals	Young animals
Bovines	<i>Boieiro</i>	<i>Vaqueiro</i> or <i>Maioral</i> + Aid	-	<i>Alfeireiro</i>	<i>Açougueiro</i>	<i>Novilheiro</i>
Status	Permanent (working oxes)	Permanent	-	Permanent if herd is large enough	Seasonal (Jan - Jun)	Seasonal
Sheep	<i>Carneireiro</i> + Aid	Shepherd or <i>Maioral</i> + Aid	<i>Alavoeiros</i>	<i>Alfeireiro</i> + Aid	-	-
Status	Permanent	1 permanent per herd	In milking period only	Permanent or temporary	-	-
Pigs	-	<i>Entregue das porcas</i>	-	<i>Entregue do alfeire</i>	<i>Vareiro</i> + Aid + <i>Zagal</i>	<i>Farroupeiro</i>
Status	-	Permanent	-	Permanent	<i>Montanheira</i> (Oct - Jan)	Permanent (< 2 yrs. old)
Goats	-	<i>Cabreiro</i> or <i>Maioral</i> + Aid		<i>Alfeireiro</i>	-	<i>Chibateiro</i>
Status	-	Permanent (<i>Maioral</i>) and Seasonal (Aid) (Oct - Mar)		Permanent if herd is large enough	-	Seasonal (Mar - Aug)

Table 1 - Functional differentiation in the livestock keeping activities

Generally, for each type of livestock, the “*Maioral*” was the overall responsible for all the animals belonging of the livestock owner, particularly the reproductive females. When there were several herds he delegated the responsibility of each herd to

an “*Entregue*”. Both usually had the help of a “second rank” keeper, the “*Ajuda*” or aid, and sometimes (namely in the case of pigs) of a “*Zagal*”, a young and inexperienced apprentice.

Some of the specific designations were given to seasonal keepers, like the “*Alavoeiro*” (in the milking period of sheep), the “*Açougueiro*” (keeping fattening animals for slaughtering) or the “*Vareiro*” (keeper of fattening Iberian pigs in the acorn period). These usually had different seasons of work yearlong, including keeping livestock, extracting the cork or other agricultural activities.

To this marked functional differentiation corresponded also an extremely important wage differentiation. In table 2 below are shown the payments given to each type of keeper in the beginning of the XXth century.

Type	Function designation	Monthly wage	Non-monetary wage ¹¹
Bovines	<i>Maioral</i>	72 000 réis	-
		or 52 000 to 54 000 réis	1 mare
		or 62 000 to 63 000 réis	1 cow
	<i>Açougueiros</i>	4 000 to 5 000 réis	-
	<i>Novilheiros</i>	4 000 to 5 000 réis	-
Sheep	<i>Maioral</i> or Shepherd	24 000 to 27 000 réis	breeds of 60 to 80 sheep + 1 donkey and its breed ¹²
	Other shepherds (<i>Entregues</i>)	4 500 to 4 800 réis	Donkey and its breed
		1 000 to 1 100 réis	breeds of 40 to 60 sheep + 1 donkey and its breed ⁴
	<i>Alavoeiros</i>	4 800 to 5 000 réis	1 cheese (70-80 gr.) per day
Iberian Pigs	<i>Maioral</i> of hores	24 000 to 27 000 réis	breeds of 1 female donkey and of 1 female pig
	<i>Maioral</i> of hores	<i>1 385 réis</i>	<i>25 kg of wheat flour + 0.75 lt of olive oil + 13 piglets + 2 female pigs + 1 piglet / breeding season + allowance to sow 50 kg of broad beans + 50 kg of chick peas + wheat¹³</i>
	<i>Maioral</i> of alfeires	<i>1 385 réis</i>	<i>13 piglets / year</i>
	<i>Ajuda</i> (aid)	<i>1 135 réis</i>	<i>25 kg of wheat flour + 0.75 lt of olive oil + 7 piglets / year + allowance to sow 50 kg of broad beans + 50 kg of chick peas + wheat</i>
	<i>Farroupeiro</i>	5 000 réis	-
	<i>Vareiro</i>	4 500 to 5 000 réis	-
Goats	<i>Maioral</i> or <i>Cabreiro</i>	4 000 to 5 000 réis	-
		or 2 000 to 3 000 réis	1 donkey + 12 goats or 15 to 20 kids

Table 2 - Wage differentiation according the functions and livestock type¹⁴

The first great differentiation was observed between the permanent and the temporary workers, the former being much better paid than the latter.

Another interesting distinction derives from the higher wages conceded to sheep and bovines keepers. It seems there existed a salary gradient, where the bovine keepers

¹¹ Payment in food, clothes and right to feed their own animals, known by “*pegulhal*” or “*polvilhal*”.

¹² The milk coming from the “*polvilhal*” sheep belonged to the farm owner, while the wool and lambs would benefit the worker.

¹³ The workers provided the seeds and all the work, while the landowner received ¼ of the production and was also responsible for the harvest.

¹⁴ Source: Picão (1903), concerning the area of Elvas, and Caldas (1903) for the area of Serpa, the wages in the Serpa area are represented in italic.

were the most highly paid, followed by the shepherds, then by the pig keepers and finally by the goat keepers. It is logical that bovine keepers could count on premium wages since in that period labor and transportation was extremely dependent on the good conditions of the bovines.

Table 2 also shows some evidence of the complexity and variability not only of wages between types of livestock and functions, but also according to the geographic locations.

These monthly wages can also be compared with the daily wages granted to temporary workers, ranging from 240 to 340 reis (Reis 1992) to ordinary handworkers (sowing or cutting shrub) and 600 réis for a crew responsible on temporary construction (Justino 1990)¹⁵.

Another figure that is the icon of the Ribatejo region is the *Campino*, a particular kind of cowboy in charge of the herds of the particular breed (Brava) aimed to bullfights.

3.1.2.2. The living and working conditions of the livestock keepers

Despite the wage levels being the higher amongst the agricultural workers, the particular living conditions associated with this activity were some of the harshest. The majority of women even rejected to marry with men dedicated to livestock keeping.

In Alentejo region the herds usually didn't get back to shelters (*currais*) near the villages in the night, sleeping all year in the pasture areas. According to Conde de Ficalho (1899), "*The life of a shepherd may seem idle but it's actually a hard life. The stormy nights of winter sleeping in the fields, the terrible Alentejo sun in summer, often without a shadow to take cover, the long distances walked on foot from property to property or in the time of livestock fairs, all this demands from the shepherds of this region a particular robustness that can only be achieved from the apprenticeship as "Zagal" from early childhood...*".

The nutrition of the keepers was frequently the responsibility of the latifundist. A typical situation would be for the weekly diet of a keeper to be composed of 9 to 10 kg of bread, 315 g of bacon, 35 to 50 cl of olive oil, 2 lt of vegetables and 7 small cheeses. The goat keepers wouldn't receive any olive oil during the milking period, since they could consume the milk they wished.

The keepers used to sleep in the pasture fields in primitive constructions, small huts or shelters, close to the livestock-folds (*malhadas*) (Oliveira *et al.*, 1988). The huts and shelters had usually a conical shape, and were made of stone or wood and covered with scrub. The only way to warm up in the cold winter nights was the fire and the blankets. These type of living conditions, and not the wages, made the livestock keepers to be considered the workers with the lowest social status and one of the least interesting professional activities.

4. The extensive livestock systems in the present

4.1 Survey objectives

The main objectives of the research were to:

¹⁵ 240 * 28 = 6 720 réis per month; 340 * 28 = 9 520 réis per month; 600* 28 = 16 800 réis per month, which even if they find work during all the year, which was a mirage for temporary workers, still show a great lag comparing to permanent workers.

- Characterize the profession of livestock keeper in the present and to provide a picture of the diversity of situations that can be found in order to identify the main changes that took place in the professional situation of the livestock keepers of the South of Portugal during the XXth century;
- Provide a comprehensive framework (that is able to provide an holistic perspective) of the main determinants of these changes by identifying the interrelationships between the changes in the production systems and the ones that happened in the livestock keeper profession.

4.2 Methodology

The method followed to obtain data was a questionnaire made directly by the authors of this article to the owners or managers of 25 farms in the *Ourique* municipality. The process of farm identification was made in a visit to the area in January 2004, in which the presidents of 5 sub-municipalities (*freguesias*) of *Ourique* helped to identify a list of all the livestock owners and respective keepers presently in activity and some of their features like the type of livestock, the area, the number of employees, etc... With this information an initial set of potential farms to inquire was chosen, in order to include the maximum diversity of situations possible, either concerning the type of farm/livestock owner or the type of livestock keeper.

The choice of the 5 *freguesias* of *Ourique*¹⁶ had to do with the fact that this territory is located in a transition area between a predominantly open land area, with some good soils and larger-sized farms, and another area in which the “*Montado* systems” prevails¹⁷, with poorer schistic soils and a smaller average size of farms. This feature naturally creates a wide diversity of situations to be studied, which could be generalized to many other points of the Alentejo region. The good local contacts the authors have in this area were also an important criterion in the choice of *Ourique*.

During the month of February 2004 the previously chosen farm managers were questioned about their farm features¹⁸, working conditions and processes, feeding strategies and rationale behind the management decisions they take. After this it was asked the possibility to inquire their employees (permanent and temporary) concerning their personal background, their living conditions and their ideas about their socio-professional situation.

In terms of methodology, this is an exploratory analysis that doesn't attempt at a statistical validity (although the authors think, from personal experience and expert knowledge provided by contacts in different points of the country, that the situations in many other parts of Alentejo where the extensive livestock systems predominate are relatively similar in the present), but rather seeks to explore and capture the diversity of situations and changes occurring in the southern fields and try to understand the influential factors and the interrelationships between variables.

¹⁶ *Conceição* and *Panóias* (in the predominantly open-land area), *Garvão*, *Santa Luzia* and *Ourique* (in the predominantly “*Montado*” area).

¹⁷ Agri-forest-livestock systems (see reference from Coelho), where the forest component is predominantly composed of Cork (*Quercus suber*) and Holm Oak (*Quercus rotundifolia*) that provide acorn in the fall period for extensive livestock production

¹⁸ The initial list had to be slightly changed due to the impossibility of questioning some of the previously chosen farm managers. Nevertheless the replacements were made in the perspective of assuring that the maximum possible diversity of situations could be included.

4.3 - Results of survey and secondary data: main changes in the situation of livestock keepers

The outcome of the survey has also been a set of main change trends occurring in the extensive livestock systems of southern *Alentejo*, which were synthesized through a qualitative analysis of the questionnaire results, an analysis of the secondary statistical data and expert knowledge. It must be stressed that these changes are obviously interrelated, impact each other and may be determined by the same factors. Nevertheless, an effort will be made to individualize the most relevant changes and associate them with the most important factors.

The features of livestock keepers

	N°	Age (%)			Education (%)		
		>30	30 - 50	> 50	4 ys or less	4 – 9 ys	More than 9 ys
N° of farms	25						
Salaried keepers	37	8	46	46	84	11	5
Bovine keepers	6	17	50	33	100	0	0
Shepherds	8	0	25	75	88	13	0
Pig keepers	5	0	0	100	80	0	20
Goat keepers	1	0	100	0	100	0	0
Polyvalent	17	12	65	24	76	18	6
Mentally retarded	2	1	1	0	2	0	0
East European	2	0	1	1	0	0	2

The questionnaires were made to 37 permanent salaried keepers from 25 farms. The relative abundance of the different types of keeper shows a little bit the relative abundance of each type of worker that can be presently found in the study area (although the sample was not designed to be statistically significant). The abundance of polyvalent workers shows that this is the most requested type nowadays, especially in the farms that have several types of livestock and of production orientations, but also in the farms that only have one type of livestock. It was only possible to interview only one seasonal worker (a pig keeper), the remainder being permanent workers. The non-polyvalent workers are mostly the ones that still keep a strong traditional character in the way they perform their work, being exclusively occupied with a single type of livestock. In some cases they work in farms that just have that type of animals but in other cases they work in farms with large enough herd size to justify one specialized worker to be in permanence with the animals. “Pure” shepherds and bovine keepers could be found in the area more easily than “pure” goat or pig keepers, also because very few farms are specialized just in pigs or goats (usually they are present in mixed livestock farms).

Furthermore, the data presented above show that more than 50 per cent of the keepers interviewed were younger than fifty years old, and that 8 per cent of them were even under thirties. Bovine keepers seem to be on average younger than shepherds but the group with higher proportion of elements less than fifty years was the polyvalent workers.

At the same time, and although the levels of formal education were quite low among the interviewed livestock keepers (84 per cent with 4 years of school or less, many of them without even the ability to read or write), the polyvalent workers were still the group with better figures. This is certainly associated with the need for better

qualifications that their role demands, namely in what concerns to the operation of machinery in more sophisticated farming environments. Although not represented in table, the number of keepers with agricultural professional training in livestock or machinery activities was also extremely reduced – very few had more than “practical knowledge” transmitted from colleagues or from the family.

The earnings

The information presented in the table above was selected from the cases inquired in the survey. Since several keepers had very similar features, the ones presented here represent an illustration of the diversity that can be found.

Type	Function designation	Monetary monthly wage (euros)	Non-monetary wage
Bovines	<i>Maioral I</i>	430	14 cows in <i>polvilhal</i> + water, light, wood and house
	Aid I	400	3 goats + 1 sheep in <i>polvilhal</i> + food and house
	<i>Maioral II</i>	600	-
Sheep	<i>Maioral I</i>	450	130 sheep in <i>polvilhal</i>
	<i>Maioral II</i>	350	179 sheep in <i>polvilhal</i>
	<i>Mairoal III</i>	600	100 sheep in <i>polvilhal</i>
	<i>Maioral IV</i>	350	Shelter + food + laundry
Goats	<i>Maioral</i> or <i>Cabreiro</i>	600	8 goats in <i>polvilhal</i> + house, food and laundry
Iberian pigs	<i>Entregue das porcas</i> (keeping hores)	500	6 piglets per breeding + water, light, wood and house
	<i>Entregue das porcas</i>	625	All food, water, light, wood and house + 1 trip/year to Romania
	<i>Vareiro</i> (seasonal for <i>montanheira</i> period)	950	-
Polyvalent	Tractor drivers	25 to 35 / working day	-
	Polyvalent I	800 + 10 per heifer	2 pigs/year + wood
	Polyvalent II	700	1 cow in <i>polvilhal</i>
	Polyvalent III	675	10 cows in <i>polvilhal</i>
	Polyvalent IV	600 + prize per sale	house, food and laundry

As it can be seen from the table above there are significant variations between the workers responsible for each type of livestock. These have more to do with the several forms of payment than with the type of livestock, although the polyvalent workers are on average better paid the other workers. Generally the larger monetary wages are paid when no other compensations are given like a house to live (including water and electricity), the existence of *polvilhal*, a number of young animals per breeding or cooked food for every meal.

Furthermore, in the majority of the cases inquired the salaried keepers didn't spend any vacations although they have the right to do so. Most opted for receiving an extra salary for the vacation month (either because they need the money or because it's not easy for their bosses to find replacement for 1 month and they don't wish to create any type of tensions), that together with the two other extra salaries (Christmas and summer subsidies) permit that the keepers obtain 15 salaries per year. Apart from this, in all the cases interviewed the discounts for Social Security were made, and some of

the older keepers received not only the monthly wage but also a monthly retirement pension.

The keepers that had animals in *polvilhal* derived also some extra income from the sale of the young animals corresponding to their share in the livestock owner's herd, but also the premiums due (for bovines, sheep and goats) in the case of the existence of quota rights.

The only case of a seasonal keeper (the *vareiro*) that was interviewed revealed to be one of the best paid per month, although he just worked 4 months per year (from October to January). This is certainly related to the difficulty of the job, which consisted in keeping Iberian pigs in a "*Montado*" area without fences.

As it can be easily understood this profession is relatively well paid comparing even to other sectors of economy. It must be recalled that the minimum wage in Portugal is around 350 euros and it is widely practiced for unskilled labor force in the industry and service sectors. The main comparison to be done with livestock keepers is the number of working hours and the lifestyle: while most other types of work have an eight hour-schedule per day and 5 or 6 days per week, most of the interviewed livestock keepers worked 7 days per week without a fixed schedule.

When asked to compare their activity with working in the civil construction, commerce or industry the main features pointed out were the demand on time and the "dirtiness" of the work of livestock keeper (not only due to the direct work with animals but also due to the exposition to the bad weather in winter and the very hot temperatures and sun in summer). Some of the younger keepers interviewed were not particularly happy with their present professional situation, especially those that were doing it because of losing another job (3 keepers lost their job in the industry sector when the firms where they worked in closed, in Évora and Lisbon, and they decided to come to the study area to find a job), and they wished to change to another type of work mainly as truck drivers or in the civil construction in case an opportunity comes up.

On the other side, part of the interviewed keepers, particularly the older ones nevertheless said to enjoy very much the feeling of freedom the work gives to them and the direct contact with nature. The arguments of "somebody has to do this job" or "there is a room for everybody in the society" were also heard for several times, and some even said "I don't imagine myself doing something else, like sitting inside an office or a shop the whole day!".

A particular case was the two interviewed keepers from Eastern European countries: one from Romania and one from Ukraine. Their education qualifications were much higher to the ones of the majority of the other keepers, both having completed technical secondary school in agriculture in their home countries. Their professional background started there, where they had different jobs in agricultural and in industry sectors, coming to Portugal looking for "a better life" due to the very low salaries and lack of employment. It was also curious to note that both were relatively well paid and had good living conditions in comparison with the majority of the keepers interviewed, and their managers expressed to be happy with their work performance.

Another particular case was of two mentally retarded keepers that did all types of work related to livestock but always under the orientation of other workers. Both were totally dependent on the manager who supplied house, food and all types of care, although they didn't belong to the family. According to what we heard in the area this is a relatively frequent situation, and can be partly explained by the assertion often heard that "only old and crazy people want to be livestock keepers (namely shepherds)!".

The lack of labor force to keep livestock was one of the main complaints heard from every manager, which can explain the emergence of these two very contrasting groups: the foreign highly qualified workers and the mentally retarded.

The living conditions

Each of the livestock keepers (but also the farm managers) was questioned about his living conditions, namely the property of own house, the conditions of the house where he spent most of the time, the persons living with him and hobby activities.

	N°	% With own house	% Sleeping most of the year in house/place with poor conditions	% Sleeping most of the year without partner
Salaried keepers	38			
Bovine keepers	6	66	100	83
Shepherds	8	75	50	50
Pig keepers	5	40	0	0
Goat keepers	1	0	100	100
Polyvalent	17	53	0	47
Mentally retarded	2	0	0	2
East European	2	0	0	0

The table above presents some of the living conditions for each type of livestock keeper. It can be seen that a relevant proportion of the keepers didn't have any own house and lived in a house or shelter that belongs to their manager.

The fact that keepers had own house doesn't mean they lived in it most of the year, since it's often the case where the keeper lives away from his own house and apart from the wife and kids. This happens mostly in the case of shepherds, but also some bovine keepers, which still have the traditional profile of livestock keeper living in the pastures close to where the livestock is. These keepers usually sleep alone, in a small house with 1 division, in old wagons or in huts made of metal, thus generally not having electricity (the light comes from petrol or fire made with wood), the water is cold and kept in large bottles¹⁹, and they usually have beds covered with several hot blankets. Generally the keepers that still live in these conditions have their own vehicles (or use their managers') and they go shopping their own food and other goods in the closest village. They meet their families not more than once a week, either going to their own houses or the wives coming to them.

One important aspect that distinguishes most of the interviewed polyvalent workers and pig keepers from most shepherds and bovine keepers was that the former had better living conditions and often lived with to their families in the villages. Living in a village permits to have a better social life and some of the most conscious farm managers that employ salaried keepers mentioned that they don't want their workers to live away from families and thus try to create working conditions that allow them to

¹⁹ One of the most striking cases found was of a shepherd who lived the whole year with the animals, slept in a moveable hut and didn't have his own house. In this case the manager took hot food to him every day and it was pretty much the only person he saw for days.

sleep at home every night. The 47 per cent that slept most year without a partner were not because of difficult work conditions but rather because they were not married and frequently lived with other family members.

When questioned about hobby activities most interviewees claimed the work occupied all their time and therefore they didn't have any hobbies besides reading the newspaper or female magazines or watching TV at night. The ones that had one free day per week sometimes went hunting, fishing, taking care of their kitchen plots, go shopping with family or simply to meet friends in the cafés, but almost none derived any extra income from their hobbies.

The transhumance season

Of the twenty-five farms interviewed, five of them still do or did transhumance with their sheep to the summer stubble pastures (mostly wheat) in the region of “Barros de Beja”. In these cases the experience and information about this practice were asked to the farm managers and/or to the keepers involved.

The longest transhumance path followed took around 70 km, and 5 to 6 days journey, mostly on foot through the fields and sand secondary roads. The departure usually takes place from late June to early July (after the cereal harvests) with herds that can take up to 1000 sheep or more, and the return can be in late September (before than plough of the land for the winter cereal sowing) or even just in January. The shepherd guiders are experienced, they have to know very well the way and previous agreements with various landowners along the way have to be made for the sheep to be able to stop for food, they have to find shadows in the hottest parts of the day, as well as drinking water for the animals and proper places for the herd to be kept during the nights. The private property to where the herd goes in the destiny area has to be agreed for a price per hectare that presently can vary from 20 to 30 euros per ha depending on the quality of the stubble (wheat is more expensive than oats).

On the days of journey several cases were detected. One of the managers, that used to go with the shepherds but by van, said he and his employees took most of the meals in restaurants and slept in the van. In other cases the shepherds took their own food (bread, bacon and ingredients to make soup) and personal belongings in a horse, and eat hot meals for dinner cooked by them in small portable gas ovens. They sleep with the sheep, under some tree without shelter since the summer nights are usually warm in Alentejo summer. One of the main tasks during the night can also be to defend the herd against wild animals like wild dogs or foxes.

When they arrive in the destiny area they usually stay in shelters or small houses belonging to the landowner there, often without electricity and piped water.

The justifications for the practice of the transhumance in the present were discussed with the farm managers. They all referred to the very poor feed conditions of natural pastures in the study area in summer, which cannot sustain the herds. Therefore this practice is an answer to a string constraint of feed, although they couldn't say if this was more economic than buying supplement (industrial feed, straws or hay) in the market.

The main reasons put forward were actually sanitary. The schistic soils of the study area create a lot of dust in summer and this is highly damaging for sheep. The clay soils in “Barros” don't present this problem and adding to the better quality of the stubble the managers say that ”when the sheep return from Beja in autumn they come

fat and healthy”. Another reason is the “sanitary emptiness” that allows for many microorganisms responsible for diseases to decrease in the pasture areas.

Finally it should also be said that there are still some own account shepherds doing the summer transhumance. They are small livestock owners without salaried employees, more abundant in the past, that still need to do transhumance because they own small amounts of land in the study area relatively to the size of their herd. For them it’s an important feeding strategy to practice the summer transhumance.

The working conditions

	N° farms with:	Main productive orientation	Reproductive females (heads)			
			0-100	100-250	250-1000	> 1000
Bovines	17	11	4	7	0	0
Pigs	21	2	2	0	0	0
Sheep	17	10	1	2	4	3
Goats	7	2	0	2	0	0

Another point of the questionnaire respected to the working conditions of the livestock keepers, namely the amount of physical effort needed to perform the different keeping activities. Some of the tasks debated with the livestock keepers and the managers were:

- **The distribution of feed supplements to animals** (grains of cereal, industrial feed, on-farm made mixtures, or bales of straw or hay) – this is one of the main daily tasks the keepers have to perform, but there are marked differences between different types of livestock:
 - o Bovines: for this type of livestock the distribution of feed supplements is needed in the scarcity seasons, especially in autumn and winter (roughly from late September to late February). In the 17 farms inquired with bovines (all based on suckler cows for heifer production²⁰), 9 of them had “modern feeding systems” while the remainder 8 used more basic systems. The “modern” systems are here understood as mechanized systems where the amount of human effort is minimal: the keepers, mostly polyvalent, carry all type of supplements in tractors with carrying devices working with large-round hay or straw bales or with uni-feed equipments that put the supplements directly into the feed places. The more basic systems are mainly based on the small bales that are transported in vans or wagons but demand keepers to carry them on the back or on wheelbarrows inside the fenced areas or to the open pasture areas. Nevertheless there is the idea that bovines are the type of livestock that demands less feeding effort, using mostly green pastures or forage crops in spring and stubble of different crops in summer.
 - o Pigs: the feeding system for Iberian pigs has two main phases: the regular period (February to September) and the “*Montanheira* period” (October to January). In the first one the pigs are nowadays mainly kept inside “camping”, meaning fenced areas with shelters, water supplies and feeding places. In this period they are fed mainly with cereal grains and industrial feed (or mixtures of both), and

²⁰ Either pure *Charolais* or *Limousine*, or crossings of these exotic breeds with Alentejo regional breeds like *Alentejana* or *Mertolenga*. In none of the farms inquired the production objective was fattening.

- the keepers just distribute daily this products inside the fences. The physical effort needed is to carry the feed in bags on the back or in wheelbarrows, and in buckets to the back of a wagon or van and then un-carry them in the same way inside the fences – in all the cases inquired this was the case and it usually demands considerable daily effort, that some managers considered excessive and think about forms to modernize it. Anyway most of the keepers doing this job were polyvalent and made other tasks in the farm. In the “*Montanheira* period” the fattening pigs go either to fences in “*Montado*” areas to eat the acorn (and for this they don’t need a keeper in permanence, the polyvalent just has to conduct them to the area) or they go to open areas and for that they need a specialized pig keeper, usually employed on a seasonal basis, that has probably the most difficult task of all livestock keepers and therefore one of the best paid.
- Sheep and goats: The situation for these is similar to that of bovines (also here the main production objective is the production and sale of lambs or kids), although most of the farms don’t supply industrial feed or grains in the scarcity period. The supplements given are mostly small bales of hay or straws, none of the farms inquired used large round bales in the case of sheep. Therefore the distribution of supplements to sheep demands more human effort than in the case of bovines. On the other side, the sheep and goats are the livestock more dependent on grazing pastures (green pastures or forage crops in winter and spring, and dry pastures or stubble in summer), and in a great proportion of the cases used to totally or partly doing it in open land (as it was the case of goats) – the presence of shepherds was therefore frequent, especially in the inquired farms with more than 1000 heads, which were divided in separate herds each with a *maioral* shepherd in charge. In the situations of fenced pastures the constant permanence of a keeper is not needed, so the system is less labour-intensive.
 - **The water supply to animals** – on only one case (the goat producer) the old system of carrying buckets of water from a well to the watering places was still prevalent, and demanded a substantial physical effort. In all the other situations, especially the livestock owners with most of their land fenced, the only work consists of periodically filling up a 5 000 litre deposit (or larger) from wells with a motor pump, and connecting it either to automatic watering places near to where the animals are or filling up regular watering places (more frequently in summer than in winter). In the case of bovines and sheep, it is also frequent the presence of small dams where the animals can drink freely, the same working for the properties with natural watercourses. Therefore the general result of the questionnaires was that one of the most important changes that happened in the last 10 to 20 years in the study area livestock farms was the generalized adoption of automatic systems and the construction of dams that reduced human effort to a minimum.
 - **The guarding and conduction of the animals** – the progressive fencing of the pastures, either with barbed wire, with special sheep net or with electrical moveable fences (especially used in the case of bovines, but also very effective to pigs), has been occurring and will continue to occur in the next few years with the support of the EU subsidies for farm infrastructure. This has a major impact in the working conditions of the keepers, as it was reported by themselves as well as by the managers, particularly in what respects to the progressive replacement of traditional keepers with the polyvalent workers (which is mentioned by the managers as an important need). The implementation of schemes of rotational grazing, the use of

cattle crush to separate animals and in one case the conduction of cattle from fence to fence with a 4x4 motorcycles mirroring the example of the Australians.

5. Conclusive remarks

The framework described on the Diagram 1 and the description of the empirical approach based on the Portuguese case study accomplished the two main goals of this paper. However, in order to conclude some aspects need to be highlighted.

From the theoretical point of view the proposed framework seem to have the merit to focus on the driven forces according with the following hierarchy: the first level determinants, that is the market-driven influences that are integrated by the personal features either of the decision-makers (that is the point of view of the capital) and of the livestock keepers; and the second level determinants, the available technologies.

This framework, besides having a good explanatory power, serve as a guide to find a systematic way to approach the determinants of change and at the same time, by making appeal to the global influences and to the historical, socio-economic and cultural context prevents us from deterministic temptations, such as to over evaluate the technological aspects.

The empirical description has its own merits. It serves to illustrate and support the theoretical framework, but it also provides a systematic description of the evolution of the livestock keeper profession, showing the large diversity of possibilities that we find in Portugal. That is, we find examples of an up to date modernity (as for the case of a fenced and well infra-structured farm were livestock keepers are polyvalent workers using 4x4 motorcycles) as well as examples of the traditional livestock keeper that lives with the animals and, in spite of its now good remuneration levels, still are at the bottom of the social status. That is, extensive livestock production provides a good illustration of Portugal as a part of the world semi-periphery²¹. That is, a country where most features of modernity coexist with many others that do not exist any more on the most developed countries.

After finishing this attempt to study and understand the living and working conditions of the livestock keepers and the determinants of change involved on the evolution patterns of these professions we come to terms to a great lack of knowledge about what is happening in the different parts of the world suggesting that cross country comparisons need to be developed, which could be a part of an up to date research agenda. Cross-country comparisons that at least should address the differences and similarities of the working and living conditions of the livestock keepers as well as an attempt to approach the questions developed on Diagram 1.

²¹ Santos (1985:872) characterizes semi-peripheral societies in the European context “by a certain lack of coincidence between the relations of capitalist production and the relations of social reproduction. This lack of coincidence consists of the backwardness of the relations of capitalist production, of the relations between capital and labor within production, in comparison with the relations of the dominant model and practices of consumption.”

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