ICN
Instituto da Conservação da Natureza

Ministério da Agricultura, do Desenvolvimento Rural e das Pescas

12/13

Desertificação

MEDITERRÂNEO

MEDITERRÂNEO

N.os 12/13 Semestral 1998

Desertificação

Instituto Mediterrânico
UNIVERSIDADE NOVA DE LISBOA

MEDITERRÂNEO
N.º 12/13, Jan.-Dez. 1998

Nelson Lourenço*
Teresa Pinto Correia; Maria do Rosário Jorge; Carlos Russo Machado**

Farming strategies and land use changes in Southern Portugal: land abandonment or extensification of the traditional systems?

Key-words

Land-use, marginalisation, extensification, land abandonment, farmers, depopulation, policies.

Introduction[1]

Since the middle of 20th century, the agricultural sector in Europe has been under a constant process of transformation. This process is the result of the impact of both internal factors, such as the technological innovations and rationalisation of production and external factors such as those determined by the socio-economic framework and by the agricultural and regional development policies. As a result of these transformations, farming systems change and with them also the land use and the landscape are transformed.

In the Southern part of Portugal, this process of change in the land use pattern has been especially evident during the last two decades. The land use changes, which occur, may be classified as extensification, forestation, abandonment and intensification.

These changes reflect the relationship between the three most important production factors: land, work and capital (Bonneval, 1993). Marginal regions, often with a high rate of poorer soils and an socio-economic situation in decline, have a

* Universidade Nova de Lisboa, Portugal
** Universidade Atlântica, Portugal

more fragile agricultural sector and are, therefore, more vulnerable to changes in context, leading to more frequent land use changes.

But, can one speak in terms of marginal land or marginalisation? The concept of marginality is commonly applied to certain rural areas which are characterised by less positive indicators in terms of development (Internal Gross Product, employment, revenue, etc.) This concept is, therefore, equivalent to that of a peripheral or deprived region. However, the concept of a deprived region has a more precise meaning within the context of agricultural policy: in effect, it is considered that certain regions (for example mountains) offer less favourable natural conditions for production on account of the soils, climate or topography. They are therefore granted compensatory indemnities, which "compensate" these handicaps and allow agriculture to survive there because it is thought that, without it, these regions risk becoming deserted.

This concept of marginality (natural handicaps) has, therefore, resulted in the maintenance of weak competitive production systems be it in the name of a social aspect or in the name of "services" rendered by agriculture (upkeep of land, preserved accessibility, etc.). The transition of marginality from straightforward backwardness to a handicap to be compensated is also the transition of a purely economic reference to a vision which extends to other social or territorial criteria, namely environmental criteria: the aim is to maintain production systems for reasons other than production or economic development.

In a more dynamic perspective, our concern is the process of marginalisation. The processes of the socio-economic decline of certain regions whose production conditions are less favourable, therefore, correspond to the concept of deprived regions. The extensification of agricultural production thus tends, whether we like it or not, to concentrate production in more favourable areas which produce in great quantity at better prices to the detriment of more traditional production methods which are often those found in marginal regions.

It is essentially a dynamic concept related to each situation's conditions and to the farmer who farms the land. The same land, in another context or in the hands of another farmer, would possibly not be marginal, or even close to it. The concept of marginalisation depends on the farmer and the context: the process of farmland marginalisation occurs when the farmer or land owner has problems in adapting, or can not at all adapt, to new conditions imposed by the market, social context or structure and, therefore, chooses to give up agricultural production or the land itself.

Also, agricultural marginalisation is often not the only matter in question: these rural areas can only survive as agricultural regions if socio-economic life is also maintained in conjunction with other activities and with the support of public and private services. This is perhaps the greatest risk for the Alentejo, where the agricultural systems are very extensive and given that they provide little employment, they do not help to retain the population. Agricultural marginalisation and socio-economic marginalisation are then joined together in a vicious circle of decline. The reversal of this cycle would only be possible if other economic activities, which might also contribute to retaining the population, were promoted in the Alentejo region in conjunction with agriculture[2].

The changes in the land use reflect the farmers'/land owners' different survival strategies and may occur in one sense (extensification, abandonment), but they may simultaneously occur in opposite senses (intensification in the best soils, extensification in others).

Intensification corresponds to a more intense use of one or several production factors. It is normally associated to greater investment per hectare and per crop with a view to obtains greater viability.

Extensification, which takes place in different regions with different agricultural systems, can be considered as a less intense application of the production factors. For example, less use of fertilisers and/or pesticides, fewer animals per hectare, reduced number of planting years in the rotation systems, etc. This process results in a reduction in production per hectare and may, as a consequence, be less environmentally aggressive. In any case, is considered by the farmer or landowner as an adaptation to the surrounding context or even an optimisation of land use under the existing conditions (external context and individual situation).

In the Alentejo the traditional systems based on forestry in conjunction with animal farming and crop rotation with a fallow period/pastures are production systems considered, within the European context, to be extensive. This designation is linked to low density crop growing, few animals per hectare, low or non-existent use of artificial fertilisers, etc. However, it should be stressed that authors such as O. Balabanian and M. Feio, in studying the Mediterranean regions and in particular the South of Portugal, were confronted by some contradictions in the concepts of extensification/intensification.

Thus, for Balabanian (1980) the intensity of a production system consists of the relationship between the income obtained and the optimum income imaginable in a specific place, at a certain time and under very precise market conditions.

In this sense, for these authors, the *montados*, which exist in the South of the Iberian Peninsular and in the Alentejo in particular, constitute agro-forestry-pasture systems with intensive soil use. This fact results from equating possible incomes in regions, which have unfavourable biophysical conditions, with the practice of other kinds of agriculture. However, given that in this region the natural conditions are not always unfavourable, it is possible, in some areas, to develop other kinds of production that may be competitive in the European context. This is the case of wine of recognised quality or the cereal crops produced on areas of fertile soil where irrigation is possible.

Forestry corresponds to a process of soil use, which implies low levels of yearly investment and low profitability per hectare. However, the forest constitutes a mean of making viable areas with soils which are not very productive and where the topography makes other kinds of use difficult, preventing or attenuating the abandonment of the land. In accordance with the species planted and their suitability to the surrounding environment, the forest can constitute an element which gives value to the landscape and the environment - although the opposite also happens, above all in mono-plantations of an intensive nature.

With regard to abandonment, the designation of land as *abandoned* leads to the perception of a process of reduction in the occupation of the space with agricultural activities or other activities carried out by farmers. In this study, abandonment was considered to have taken place when the plots were not used from an agricultural point of view nor did they have any alternative use such as forestry, urbanisation and leisure activities.

The concept of the abandonment of plots of farmland has been currently associated with the development of a permanent cover of scrub, but this indicator must be applied carefully since use can be made of the land for forestry or hunting, for example, independently of scrub cover, or it may even be improved by it.

On the other hand, this concept of abandonment is directly conditioned by the kind of use which is made of the farmland in each region and, as a result, by the perception which the farmer or owner has of land use. For a northern European farmer, abandoned farmland would be that where there is no direct and regular use made of it for crops or pastures. For a Portuguese farmer in the Alentejo, the land may be left fallow for several years, it may not be used for agriculture and only be used for forestry, it may be covered by dense scrub but not be considered abandoned.

The trends of change are often complex and difficult to identify. It is frequent to have intensification followed by extensification, or an intensive tree plantation may follow both. Also intensification in the use of the tree cover may occur at the same time as an extensification in soil use. Intensification in mechanisation may be connected with extensification in grazing pressure and even abandonment may be permanent or temporary (Balabanian, 1984; Pinto-Correia and Mascarenhas, 1998).

The region of Alentejo and the inland of Algarve (Serra Algarvia), have been characterised, in the last decades, by a clear depopulation trend that is identified by a decrease and ageing of the population in the large majority of the municipalities. This process occurs with economic decline, increasing unemployment rates and lack of investment.

Abandonment of farmland has thus often been seen as one more indicator of this generalised decline, a regional tendency, showing that traditional farming activities in this region were threatened (Avillez *et al*, 1993). These scenarios have also been followed by the assumption that eventually new economic activities in the rural land, as rural tourism or hunting, should be developed and supported.

But the real measure of land abandonment in Alentejo and also in the Algarve inland, is difficult to access and due to the complexity of trends connected with each other, in each exploitation parcel, it has not yet been possible to evaluate the real dimension of the phenomenon.

The analysis of case-study areas can nevertheless contribute to the understanding of the processes occurring and to the identification, in the areas studied, of the trends dominating and of probable scenarios for the future. For this purpose, the analysis of farmers and land owners decision making is a fundamental element, since they are the main users of the land and those who take decisions concerning its use (Baudry, 1989).

For three case-study areas in Southern Portugal, this paper presents the recent changes in land use pattern and in the functioning of the different farming systems, together with an analysis of farmers and landowners strategies, the factors influencing them and perspectives for the future. The research developed was mainly based on the present and recent past situation, but maintained an evolutionary perspective, by comparisons with previous situations, chiefly in the sixties and seventies. The main objective is to contribute to the knowledge and understanding of the changes occurring in farming systems in Southern Portugal and to the construction of future scenarios.

One of the intentions of the project was to identify whether or not the changes occurring in the rural marginal regions considered were leading to the marginalisation of farmland and at the same time, to understand what this marginalisation of land was, in each region and what could be classified as marginal land.

Case study areas and methodology

The choice of the regions studied and of the case studies resulted from the articulation of geographic and socio-economic criteria, which showed demographic and socio-economic characteristics that revealed a process of marginalisation. Furthermore, the areas concerned should be rural, with farming as the main land use and they should include the greatest possible diversity.

Three areas in the South of the country were thus selected (Fig.1): one on the Alentejo coast (Zona Agrária de Mira e Alto Sado), another in the interior of Alentejo (Zona Agrária de Reguengos de Monsaraz) and another in the region of the Serra Algarvia (Zona Agrária do Nordeste Algarvio). In this last one, peasant style agriculture predominates with very small holdings strongly related to home use; in Reguengos de Monsaraz the agricultural structure is marked by large properties and by extensive production in traditional agro-silvo pastoral systems; Mira e Alto Sado, with mid size holdings, is characterised by the articulation between subsistence farming and farming which is more geared towards the market on account of the influence of the proximity of the Sines industrial site.

The case-studies have been selected as continuous territorial units structured around a village, in a dimension including approximately 50 farm units, being the boundaries defined according to the structure of the holdings included. The dimension of the case studies is therefore largely different, according to the important differences in the farm structure from one region to the other. In the cases where there are parcels of one or more farm units located outside the continuous area selected as case-study, these parcels have not been considered in the landscape and land use analysis. For a sound articulation of the socio-economic and the geographical data, within the case-study areas, all farmers and landowners should be interviewed and a comprehensive analysis of land use and of landscape structure achieved.

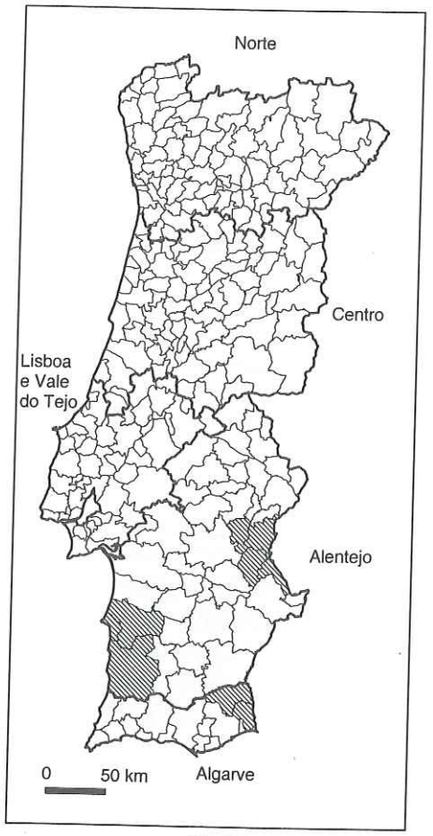


Fig. 1
Selected agrarian zones

In Mira e Alto Sado, the case study is located in the *freguesia* of Abela, including 2 413 ha around the village with the same name. Located on the West Side of the Serra de Grândola, this area is situated in a plateau, reaching 150-170m in the North and 120-140m in the South. The predominant soils are lithossoils, close to the parent rock with low capacity of water retention and low fertility levels. Almost all of the soils (95%) are D and E, the lowest classes according to the national classification for capacity of use.

In the Zona Agrária of Reguengos de Monsaraz, the case-study, with an area of 8 966 ha, is located around the small town of Redondo, but excluding the town itself and its close surroundings of a sub-urban mosaic composed by very small properties. Located in the Western part of Alto Alentejo, this case study includes the SE boundaries of the Serra de Ossa and the plateau area at the foot of this hill range, followed to the South by a large and regular plain. The soils are thin and poor in organic matter, but nevertheless better than those of Abela are. Here only 50% of the soils are of classes D and E, 35% are C and 15% B and A.

Concerning the Nordeste Algarvio, the case study area is located on the Western side of the Serra do Caldeirão, by the Odeleite stream valley and it is characterised by a row of regular hills. With its 996 ha, this case-study is relatively small, since small and very small property is dominant. It is located South of the village of Vaqueiros and includes a few small hamlets, as Fernandilho, where a few families live and which only got electricity and asphalt road at the end of the eighties. Soils are very poor, mainly thin lithossoils with high erosion risks. The bottom of the valley has less poor soils, but they are subject to strong water erosion in periods of strong rains.

For these three areas, the land use pattern and landscape features have been registered for the end of the sixties, 1990 and 1995. For the last period, the air photo information was completed with detailed field work, done simultaneously with the detailed interview of each farmer or land owner - below designated only as farmers - with farmland within the case-studies boundaries.

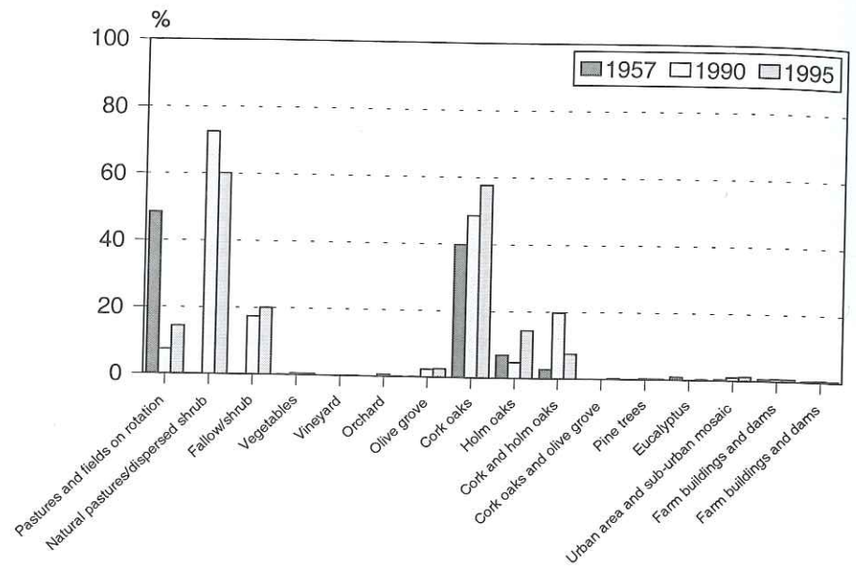
Land use changes

In the Abela case study (Fig.2), 80% of the land was in 1995 covered by *Montado*, being the under cover used for cereal farming and cultivated or natural pastures. The *Montado* is the agro-silvo pastoral system characteristic of Alentejo, where the open tree cover is associated with a use of the soil in a rotation of cultures, pastures and fallow (Pinto-Correia, 1993).

In Abela, cork oaks, *Quercus suber*, (58%) compose the dominant tree cover in the *Montado*, but there are also holm oaks, *Quercus rotundifolia*, (14%) and mixed cork and holm (15%), with a relatively high tree density. At the soil level, natural pastures dominate, with 60% of the case-study area (80% of them as under-cover). The area outside the *Montado* is covered mainly by cereal farming (oats, barley and wheat) and natural pastures. The remaining land use types, as vegetable gardens, vineyards, orchards and olive groves have little significance in the total land cover distribution, with only 3,4% of the total area; eucalyptus and pine trees are also of little importance, with 0,6% of the total area.

Concerning the *Montado*, the use of the under cover is dominated by natural pastures, where some dispersed shrub may be found (<10% of the soil surface). In the cork oak *Montado,* the areas of shrub are more important than in the holm oak *Montado* (respectively 30% and 6%), especially in the areas where the tree cover is denser than 50 trees per hectare (40% of shrub). In the holm oaks *Montado*, where low tree densities are dominant, the shrub is less important and cultivated areas are larger.

The shrub developed in this area, as well as in the remaining Alentejo and Serra Algarvia, presents different associations of several Mediterranean resistant species as rock rose (*Cistus ladaniferus*), sargasso (*Cistus monspeliensis*), greater rock rose (*Cistus albidus*), common rock rose (*Cistus crispus*), lavender (*Lavandula stoechas*), rosemary (*Rosmarinus officinalis*), daisy (*Pterospartum tridentatum*), heather (*Erica arborea*) and gorse (*Ulex densus*).



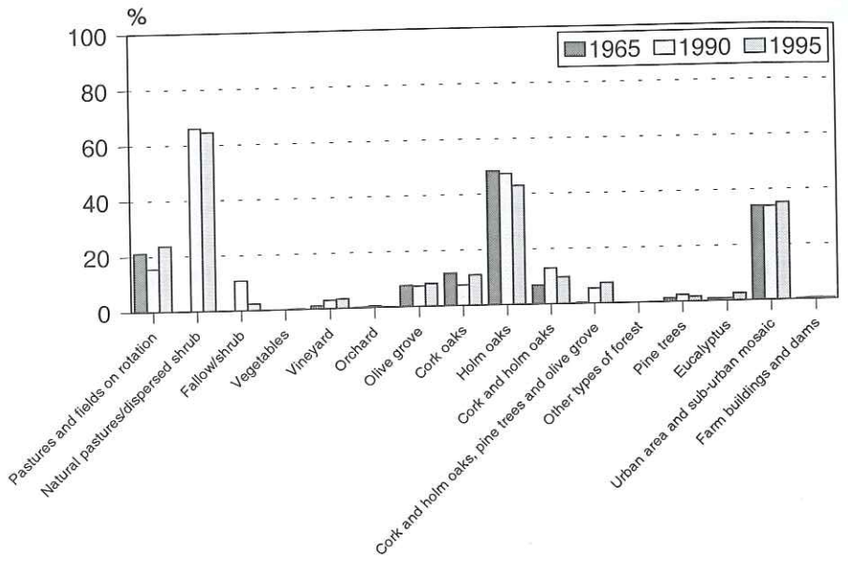
Source: Lourenço, N. *et al* (1997)

Fig. 2
Land use changes in Territorial Unit of Abela

Comparing with the land use pattern in Abela in the previous periods, the extension of *Montado* has been maintained approximately the same. Since the under cover pattern in 1957 has been difficult to identify in detail, variations can only be detected between 1990 and 1995: there has been a slight increase in the cultivated area and in the shrub area, while the natural pastures decreased, but the variation was almost insignificant.

In the Redondo case study (Fig.3), the dominant land cover is also the *Montado*, even if with a lower rate in relation to the total areas than in Abela (71%). Holm oaks are here dominant (43% of the total area), while cork oaks and mixed cover occupy both around 10% of the total area. Shrub has developed in only 2,4% of the total area and, as it happens in Abela, is located mainly under the cork oak cover with higher density.

The open area, without tree cover, corresponds to almost 30% of the total area, located in the Southern and more flat part of the concerned territory, also the one with best soils. Cultivated fields occupy most of the open area and natural pastures occupy a smaller area. The relative importance of cultivation, in relation to Abela, may be related with the quality of the soils and also with the farm structure. Vineyards (3%), olive groves (8%) and vegetable/fruit gardens (0,3%) represent permanent crops. The forested area is not very important and it is composed of pine trees (1,7%) and eucalyptus (2,6%).



Source: Lourenço, N. *et al* (1997)

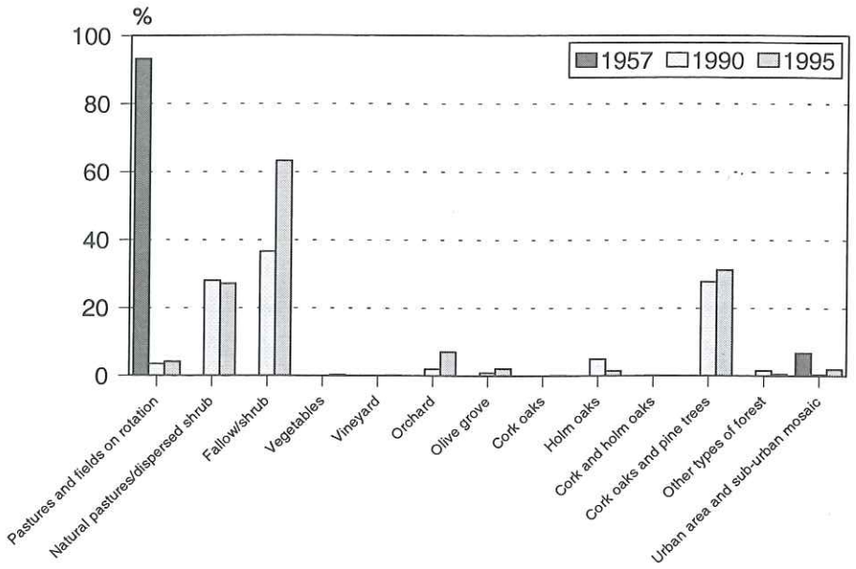
Fig. 3
Land use changes in Territorial Unit of Redondo

Eucalyptus were not present in the area before 1965, but have been planted during the last decades very massively in the Serra de Ossa, mainly by a paper pulp company on a property of several hundred hectares located on the higher part of the Serra. This is a major land use change, on an area just outside the case-study boundaries.

In relation to the past land cover, also here the *Montado* extension has been maintained since the beginning of the sixties. Recently, between 1990 and 1995, there have been slight variations, both shrub and pastures have decreased and cultivation increased.

Vaqueiros is clearly different from the other two case-studies (Fig.4): most of the slopes dominating in the area are previous open farmland, today covered by a natural herbaceous and shrub vegetation in various densities, without tree cover (57%). These large non-cultivated areas are grazed by flocks of sheep and also goats and the grazing pressure determines how many shrubs are able to develop.

The livestock owners use as pastures their own land, but also the land owned by others that do not use it themselves (many land owners from Vaqueiros are living far away and have abandoned production in their land). Most of this land was registered in 1957 as a rotation of cultivated fields and pastures. The poor soils have been eroded and exhausted, the population decreased extremely and farming pressure decreased and today only shrub grows there. Between 1990 and 1995, the



Source: Lourenço, N. *et al* (1997)

Fig. 4
Land use changes in Territorial Unit of Vaqueiros

area with a dense cover of shrub has almost doubled. The dominating species is rock rose, combined with arbute trees (*Arbutus unedo*), whose fruit is used locally for brandy. Only 4% of the case-study area are used today for cultivation.

Recent plantations of pine trees, associated with cork and holm oaks, planted during the nineties through the support of a forest plantation programme, cover 34% of this territory. In these plantations grazing is not allowed since it could destroy the young tree shoots and shrub is therefore able to develop.

Besides, there are also vineyards and small family vegetable gardens (0,5% of the area) and mainly almond tree orchards, occupying 7% of the territory. The conditions are here adequate for almond trees and almond production is often one of the few market productions of the smaller farmers. These land uses are located next to settlements and in the bottom of the valleys where the soils have less limitations, water is available and access for the farmers is easy.

Considering the three case-studies together, it is clear that Abela and Redondo, the two cases in Alentejo, are closer to each other concerning land use, dominated by an agro-silvo pastoral system and the related traditional landscape pattern. Redondo has a larger area under cultivation; Abela has higher tree densities and more shrubs. Vaqueiros has no system of this type and most of its land is covered by shrub in different densities; recent forest plantations nevertheless cover one third

of the area. The three areas register an important decrease of pastures and fields on rotation that existed in the beginning of the sixties. However, in Vaqueiros this land use is today residual and mostly for home consumption, while in Redondo and Abela cultivation is still relatively important. It is nevertheless mainly cultivation whether of pastures or of cereals to be used as fodder, not to be sold as grain.

The slight increase in cultivated area from 1990 to 1995 may be related to 1990 being a bad year for cereal farming and also to the inclusion in this land use class in 1995 also of proteaginous plants (lupines and small lupines) used in rotation either for fixing nutrients and nitrogen in the soil or for animal fodder during the summer.

Concerning shrub, it didn't exist in the sixties, at least in terms of cartography. In Abela it appears now mainly under the dense cork tree cover, where the main production is clearly cork and shrub is maintained for the fixation of nutrients in the soil and the protection of the younger trees. In Redondo shrub is reduced, eventually due to the high grazing pressure: in a strategy based on low investment and lack of innovation, the maximum use of the pastures for the livestock reduces the need to purchase animal fodder.

In Vaqueiros, shrub appeared progressively in the last decades, as a result of the abandonment of farming activity in the region. The extreme sterility of the soils together with the grazing pressure determines a poor shrub cover, in low densities. The only alternative use for these soils seems to be the plantation of forest, as the ones recently done.

Farmers typology

In this study it was important to be able to characterise the farmers and the conditioning factors in their choice of soil use and the environmental pressure on the agricultural land. It was necessary to create a typology that was dynamic, useful for forecasting and directed at choice in terms of soil use and the environment.

On account of this, it needed to incorporate some conditioning factors (namely non-economic factors such as the age of the farmer, his heirs, his education level etc.) related to decision making, restrictions and specific objectives (Jorge, 1997).

The typology proposed combines a characterisation of the farms linked to structural aspects of production (type of production, kind of techniques employed, buildings) and a characterisation of the farmer's dynamism (investments, changes in speculation, search for land). Another classification was attempted on a sample of farmers, based mostly on their objectives and strategies and, more precisely, with regard to land attribution.

This typology were formulated step by step, articulating quantitative and qualitative information, aiming to function as a comprehensive analysis tool for the dynamics of agriculture and the farmers' behaviour[3].

The different types of farmers identified in the three case studies are:

The ***traditional and progressive with medium and large farms*** are characterised by the changes in their farm, both concerning area, land use and livestock farms. We can found them mainly in Redondo, with agro-forestry combined with livestock production. These are the younger and best-educated farmers, who work only on the farm. These farmers can be sub-divided in two groups: the *progressive farmers who intensify their farming* that are the most dynamic and the *traditional farmers who extensify* in which the change that does not question tradition. The first group is the most frequent and the distinctive elements with the other one are the investments and change towards intensification in livestock production and extensification in land use (e.g. replacement of cereals by pastures). The second group have more stable management choices in the last years, aiming at maintaining the business, clearing trees, land, building fences, etc.

The ***traditional farmers with small and medium farms*** are those who traditionally have multiple jobs. They are more important in Abela and they are characterised by a tendency to stagnation, where agro-forestry farming has a greater weight than livestock production. The trees in the *Montado* are the most important production, often connected with natural or cultivated pastures that are sold to other farmers with livestock. This leasing allows for the under cover to be maintained, the shrub to be kept cleaned and gives the landowner an extra revenue. Management strategies are based on the reduction of expenses to a minimum, being the only investment the cleaning of the under cover. The farmers in this type have often other jobs or other sources of income and they have not introduced changes in the farm. These farmers can also be sub-divided in two groups: the *traditional farmers with small farms*, in which farmers always have another job and *the traditional farmers with medium sized farms* with a clearly extensive use and no change at all.

The ***routine, subsistence and declining farms*** are farms with a small field and livestock production, corresponding mainly to home consumption where the sale of some products is a complement to the family revenue. Farmers are old and mainly illiterate, being their main income source retirement or other pension. These farms appear mainly in Vaqueiros. The soil is poor and the farm structure spread out in various lots distant from each other. Abandonment of land is common and only the best pieces of land are used.

The ***traditional farmers highly centred in livestock production*** have small and medium farm productions, where livestock is the most important. These farmers often buy the land they have, instead of inheriting it, as it happens with most of the others. This land is used for grazing, as well as land from other landowners, leased or just used without a contract, as it is the case in Vaqueiros. These farmers intend to increase the area of the farm and/or the number of animals. The relation of subsidies with the size of the land may explain this trend and the number of livestock units and also the fact that extensive livestock production seems to be the best adapted to the soils in the areas studied. Besides, the larger the area of farmland, the less dependent is the farmer on purchased fodder, one of the heaviest production factors in the farmers budgets.

Finally the type more associated with the depopulation process corresponds to a land use chosen after the decline named by ***forestry as a last resort***. Those are the farms of Vaqueiros, with recent plantations, supported by political measures. This land use appears as an interesting alternative for the productive use of land that was abandoned from the agricultural point of view. These owners have other professional activities outside agriculture and normally live on the Algarve coast.

Current trends in farming systems change

Over the last years in Alentejo, the processes of change in land use have been characterised by extensification. This is increasingly an extensive use of available land, which corresponds to the increase in the area of natural pastures, conservation of the *montado* and use with little expenditure of areas that previously were given over to cereal growing. More than a global process, it occasionally results in the increase of production costs through more productive activities such as pig farming, vines, market gardening and the purchase of animals without acquiring land, increasing the production costs through fodder or leased pastures.

As mentioned before, extensification is a process often associated with the size of farms inasmuch as only a relatively large farm allows for the income levels to be maintained. Apart from this, the support measures for production and the subsidies granted per hectare also contribute to the existence of extensive production systems in which the farm management depends more on the kind of aid granted than market movement.

Land availability is a fundamental element in this process, however, the supply of land is very low and its price is high and therefore, it is the larger farms that have greater possibilities of increasing their farm area. For small and medium sized farms that have greater management difficulties, the purchase of land is an almost unattainable investment except when it is associated to the intensification of animal or vine production.

The CAP is one of the factors, which explains the change in land use and in farm structure but with different intensities. Forestry areas such as that studied in Alcoutim are where this influence can best be observed; it is also here that the main changes in landscape can be seen on account of the recent planting of trees. Forestry is an alternative mean of soil occupation to abandonment; in other words, the heirs to the land can no longer be considered "farmers" but they also do not sell the land, preserving a situation of property without production in which the forest is a long-term investment. The majority of those landowners work elsewhere and do not live in the municipality.

In the areas studied in the Alentejo, there are no significant changes in the landscape. CAP helps the extensification movement because, on the one hand, the aid granted under the guise of agro-environmental measures works as a complement to the farmers' income and, on the other hand, the attribution of grants per hectare contribute towards the choice of extensive production and the reduction of costs

related to production factors. The extreme case is that of the subsidy granted to sunflowers, independently of the crop obtained.

The abandonment of land is only evident in the region of Alcoutim, in the Serra Algarvia. However, in the other regions there are some plots with dense scrub (without *montado*) which, on account of being far away from the centre of the farm and, given the characteristics of the topography and soils, are not worth farming in any way. It should be noted that, in these cases, the owners do not sell these plots. The plots where the only production system is the cork from the cork oak *montado* are often covered with dense shrub cover, but, nonetheless, they are not abandoned but rather used very extensively, either because they are used for forestry or because this shrub cover is essential to the good development and regeneration of the trees.

The principal aspect to be highlighted in relation to crops is the generalised drop in the area of grain cereals and the increase in permanent crop areas, mostly of the fresh fruit orchards in Santiago do Cacém, vineyards in Redondo and dry fruit orchards in Alcoutim.

Bovine and sheep stocks show an overall increase (mostly as from 1979) in the three municipalities although this is acutely felt in Santiago do Cacém. This increase is definitely related to economic subsidies for this kind of animal. On the other hand, pigs only increased in Santiago do Cacém where investment was made in industrialised production that was favoured on account of the proximity of pork processing industries. In the other two municipalities, this kind of animal decreased mostly due to the end of the extensive farming of the Iberian pig on account of the outbreak of African swine fever in the seventies and to the lesser interest shown by industrial farming.

The reasons determining these different farmers' strategies are diverse and they can be explained by the differences between the several types of farmers.

In Vaqueiros, the territorial unit located in Serra Algarvia, for the farmers of the type ***forestry as a last resort***, forestry plantation appears as an alternative, without costs, to land abandonment, what is logically attractive for any type of landowner.

Concerning the type ***routine, subsistence and decline farmers***, the farming strategy is based on the maintenance of a routine, without any perspectives for the future. When the actual farmers disappear, their farming style will disappear with them. These farmers receive some of the support for production and compensatory indemnities and even agro-environmental supports (Traditional Arid Orchards of the Algarve) but those do not seem to be determining for their production choices.

Anyway, in Vaqueiros agriculture is reduced today to a marginal activity maintained by old people, which does not have any probability of being maintained in the future, excepting maybe vegetable gardens for self consumption of the resident population. The future land use in this region will probably be dominated by forest, resulting from plantations similar to those done in this decade. Abandonment will concern the agricultural activity more than the land itself.

Concerning the other farmers, from Abela and Redondo, even if they have various strategies, they have a common orientation to the market. Strategies reflect

thus an evaluation by the farmer of the profitability of their farming system, also considering the support possibilities and the market framework. And what can be verified is a common trend, the global maintenance of the farming systems existing.

None of the types identified demonstrated radical changes in the main land use systems and it can be observed that the traditional agro-silvo pastoral systems are maintained, even if extensified: some farmers invest in the maintenance or improvement of all components of the system but oriented towards livestock production. Others are landowners with other jobs and prefer to maintain the income from the trees but to lease out the pastures and others are focusing on the livestock production, on their land and on other they may lease or just use.

Another strategy passes by the investment in intensifying small but very profitable areas of the farm unit. This is the case of the vineyards and olive groves in Redondo strongly related with the market orientations and to the local support of the co-operative organisations[4].

In relation to the system existing until some years ago, cultivation for grain production has almost disappeared, but cultivation for fodder and of pastures is still common. Livestock, together with cork, are the dominant productions now, those with economic viability. The abandonment of the under cover, resulting in the development of shrub, is residual both in Abela and in Redondo.

The actual support measures of the CAP, as well as the agro-environmental measures, contribute to these trends, but it is difficult to say what would happen without them. The largest farmers have for example expressed their preference for a situation where support was inexistent, but market prices would also be better.

For the small number of Redondo farmers producing cereal, namely wheat or barley, the subsidy to production is the main reason to continue with these crops and without the support they would cease making cereals. Other "potential" cereal farmers do not have this kind of crops because they believe the low productivity levels would not be balanced by the subsidy amount. It may be concluded that cereal cultivation for grain is thus only dependent on the actual subsidy policy and would disappear in another policy context.

The support measures for investment, specific for the Portuguese agriculture, have been an important basis for those farmers who have invested and are more innovative, namely in Redondo. Farmers use these supports for purchasing tractors and livestock and for improving buildings. The importance of young farmers as beneficiaries of this kind of aid should be highlighted. The aid to individual agricultural investment is clearly higher in Alentejo than in other regions of Portugal (Avillez, 1992).

Conclusion

Agricultural activity can not be analysed outside the context of regional and local dynamics and, at this level, there are very different situations to be found in the Algarve and in the Alentejo. However, there is a common problem in the areas

studied: the continued exodus of the inhabitants to more attractive regions (within the country or abroad) and the consequent trend towards depopulation in these areas.

It is foreseeable that the future of Portuguese agriculture shall take place through the reduction in the number of farmers/farms and paid farm workers, approaching, in fact, in a belated movement, the rest of the countries of the European Union. This movement was based on modernisation and on the increase in agricultural production, which made it into a competitive sector with the capacity to employ full time labour with salaries equivalent to those in other economic activities. In Portugal, and specifically in the regions studied, the reduction in agricultural employment or the supply of temporary and not stable work is thus, contributing to the population exodus, reinforced by the lack of work in other economic activities. However, it should be noted that the real possibilities for promoting work outside agriculture are few on account of structural conditioning factors such as the age and low education and professional training level of the labour force in these regions. This situation is aggravated by the peripheral location or remoteness of these regions in relation to the industrial and more economically dynamic centres in the country.

Vaqueiros is a peripheral area with clear indicators of socio-economic marginalisation. Furthermore, small and spread out farm properties are dominating and the soil is extremely poor. This is an extreme situation, where almost all the land has been progressively abandoned during the last decades, being this process closely related to depopulation .

In this region the very attractive coastal Algarve contrasts strongly with the very unattractive hills, leading to the exodus of the hill population and the concentration of the younger and better-educated people on the coast. Thus, the Serra Algarvia is also lacking of dynamism, which also explains the lack of flexibility in the structure of property and the abandonment of land. Forestry, the recent alternative for soil use in the area, does not contribute to retaining the population on account of the low income it generates; it appears more as a last alternative to abandonment for those who left already and live most along the Algarve coast. Nevertheless, forestation appears as the only viable alternative to land abandonment, and another type of use of this land is difficult to foresee.

In the regions studied in the Alentejo, land use is still dominated by *montados*, where the undercover is today used mainly for extensive livestock production. Farmers are not investing much in innovation neither in their farming practices nor in improvements on farming systems. Cultivation of cereals decreased, but pastures, especially natural pastures are maintained and in fact the expansion of shrub is not relevant. Land abandonment is strictly localised, in the case-studies considered. And some specific productions reveal an important increase, showing that the general extensification occurs together with the intensification in restrict areas of the farm units, with the most profitable land uses.

Despite the relatively important role of agriculture, this activity is insufficient to guarantee keeping the inhabitants: faced with a traditional sector with a low capacity for generating employment, with a work organisation requiring temporary

labour force contracts and paying low salaries, the population of this area looks for alternative employment within or outside the region.

The development of activities, which promote employment in the Alentejo, is, therefore, a central issue when the dynamics of these regions are discussed. In relation to this, there have been innumerable projects for tourist development, however, rural tourism has not shown a real capacity to work as an alternative activity on account of which the investments made have been insufficient to ensure the population maintenance. Rural tourism has not contributed to na increase in farmers income: it is in general little developed and tourists rarely buy farm products. Besides, tourism in the Alentejo could bring about a similar phenomenon to what happens in Algarve: concentration on the coast and desertification of the inland, since the pressure of tourism has been stronger on the Alentejo Coast.

Another contribution for the maintenance of the traditional land use systems could be the promotion of the traditional products and growth of this market. Some farmers that intensified their farming systems already follow this process, and the European strategies for the rural world as well as the new Common Agricultural Policy support these types of production. However the profiles of the majority of the farmers are in the root of their lack of capacity to look for and understand new markets and new sales circuits. Therefore it is difficult to foresee a generalised development process based in such measures.

The process of extensification may thus lead to a situation of balance, with some innovation and product development within the traditional systems, but it may also continue until a situation of rupture, resulting then eventually in land use systems and even land abandonment. The future depends mainly on the development of regional integrated strategies and on the framework of the European policies.

Notes

[1] This paper is based on the results achieved through an international research project, "Monitoring and Managing Changes in Rural Marginal Areas - a comparative research" (1994-1997). The research concerned the articulation between farmers decision-making and landscape and land use changes in different European regions with global marginal characteristics, in Denmark, Belgium and Portugal. The Portuguese team was co-ordinated by N. Lourenço, the Belgian team by M Mormont and the Danish team by E. Sorensen.

[2] As discussed in another study about the human resources qualification in Alentejo (Lourenço; Jorge; Machado, 1998) the main difficulties rely on the absence of economic alternatives to the agriculture, which promotes regional development.

[3] The interview concerned information about the farmer itself and his/her family, the farm unit and its production, the different parcels in the farm unit and their past, present and future use, as well as attitudes of the farmers concerning for instance environment and landscape and his/her perspectives for the future (Jorge, 1997).
With the information collected in this phase, for the three case studies and with the support of a Factorial Analysis of Correspondences, a typology of farmers has been built. Five types have been identified, two of them with two subtypes, thus seven in the whole. The aim of

this typology was to identify and understand the different characteristics and behavioural logic of the farmers. This typology has been related to the land use pattern and also to the changes identified.
On a second phase, new deep interviews have been done to a few selected farmers in each case-study, mainly with the objective of understanding how the existing measures within the C.A.P. (Common Agricultural Policy), both the production support and the agro-environmental measures, influence these farmers and which perspectives they launch for the future.

[4] An important example is the work done by the Adega Cooperativa do Redondo by creating a production and marketing strategy to the local wine.

Bibliography

Avillez F., 1992. Impacto dos fundos estruturais na agricultura portuguesa. In *Análise Social*, XXVIII, 118-119: 691-702

Avillez F., Ferreira A.G., Frage G., Medeiros M.G., Pinto A.S., Rosado L., Soares J., 1993. *Manifesto para a defesa do mundo rural português*.

INE, *Portugal Agrícola*, 5: 41-44

Balabanian O., 1984. *Problemas agrícolas e reformas agrárias no Alto Alentejo e na Estremadura espanhola*, Lisboa, 190 pp.

Baudry J., 1989. *Interactions between Agricultural and Ecological Systems at the Landscape Level. Agriculture, Ecosystems and Environment*, 27: 119-130.

Bonneval, L., 1993. *Vocabulaire des systèmes agraires, systèmes de production*. INRA, Paris, 285 p.

Feio, M., 1983. Les exploitation et les problèmes de l'agriculture en Estremadure espagnole et dans le Haut-Alentejo. *Finisterra*, XXII, 43, pp. 320-52.

Jorge, R. 1997. *Dinâmicas da Agricultura Portuguesa: agricultores e explorações em contextos periféricos*. Master thesis presented in Sociology. Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa.

Lourenço N. *et al*, 1997. *Monitoring and Managing Changes in Rural Marginal Areas: a comparative research*. Final Report of a European Research Project funded by the European Commission, AIR3 - CT 93 1455. Socinova, U.N.L. and A.J.A.P., Lisbon, 447 pp.

Lourenço, N; Jorge, R; Machado, C. R., 1998. *A qualificação dos recursos humanos e o desenvolvimento de zonas periféricas*. (in print)

Pinto-Correia T., 1993. Threathened Landscapes in Alentejo, Portugal: the "montado" and other agro-silvo pastoral systems". In *Landscape and Urban Planning*, 24: 43-48

Pinto-Correia T. and Mascarenhas J.M., 1998. Contribution to the extensification/intensification debate: new trends in the Portuguese Montado. In *Landscape and Urban Planning*, accepted for publication Dec.98.

A dinâmica popu
referenciada no c
do despovoamento

I Evolução da população

I.1 A evolução da população no séc

A população do concelho de Mé ntes entre 1864 (16.004) e 1991 (9.805). Este crescime , que representa um decréscimo relativo de 39%, não representa fielmente a realidade deste concelho ao longo de todo este período. De facto, as oscilações da população ao longo destes 127 anos (Gráfico 1) são a marca mais significativa de toda a evolução.

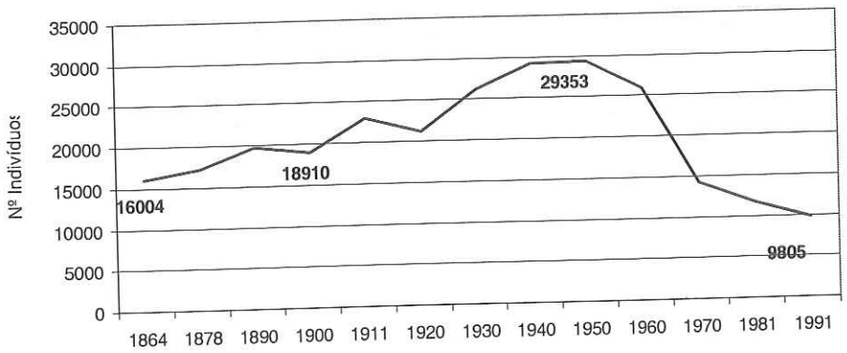


Gráfico 1 – Evolução da População Residente, cencelho de Mértola, 1864-1991

* Centro de Estudos de Geografia e Planeamento Regional. FCSH. Universidade Nova de Lisboa.