

# Dynamics of livestock farming in extensive livestock farming territories: what processes are going on?

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## Abstract

*The dynamics of family livestock farming in extensive livestock farming territories are crucial for the future of these territories. Indeed livestock farming is an activity anchored in a society, with its agro-food chains and its local environment. It provides products and multiple services: social and economic dynamics, desirable landscape, biodiversity... Family livestock farming has to reshape itself, and face up to local factors of change, such as demographic evolution or land pressure, and global factors like climate or market. The purpose of our communication is to shed light on the main processes of transformation of family livestock farming, based on a comparative analysis carried out on 8 extensive livestock farming territories : 2 in South America, 1 in Sub-Saharan Africa, 2 in the Mediterranean area and 3 in the French mountains. We propose a cross-reading of these processes based on three complementary considerations: i) the link between family and livestock farming, ii) the link of the farm to space and finally iii) the link of the livestock farm to agro-food chains. This reading informs us on the diversity of adaptation dynamics of family livestock farms. In all the territories we can demonstrate the influence of two driving forces for change on the construction of this diversity of family livestock farm adaptation dynamics. These driving forces are globalisation and territorialisation. We propose a stylised representation of this and discuss the tensions and/or complementarities which this diversity of dynamics creates within the territories.*

## 1) Introduction

Expressed at global level, livestock farming issues are often concerning food (Delgado et al., 1999) and the environment (Steinfeld et al., 2006). Livestock farming provides employment for a billion people and a livelihood for numerous families. It contributes to the development of territories by its activity firmly established in societies and agro-food chains and an area where it supplies a multitude of products and services (Rubino et al., 2006), and participates in the

cohesion, identity and development of these societies (Duteurtre and Faye, 2009). This is important for territories of extensive livestock farming whose pastoral areas can only be used by ruminants. In these regions which are often subject to difficult soil and climate conditions and far away from large consumption area, livestock farming is a major, mainly family, activity, even if some forms that are more industrial coexist in South America (Sabourin, 2010).

In all the territories, livestock farming is subject to global driving forces for change, as market globalisation (Owen et al., 2004) and climate change, or more local forces such as demographic evolution and pressure for land (competition from agriculture, urbanisation, forestry, residential housing), or national and supranational public policies. These driving forces interact with the dynamics particular to families (nuclear or enlarged) modifying their relation to uncertainty and local social organisation (Dedieu et al., 2011), and leading them down paths where they either adapt or leave livestock farming (Evans, 2009), which questions the perspective of family livestock farming in the territories.

Our communication aims at shedding light on the processes of transformation of family livestock farming at work in territories of extensive livestock farming in the North and South. It is the initial step of an international research project called MOUVE (Dedieu (Coord), 2010) which is interested in the interactions between livestock farming and territory from the viewpoint of sustainable development. For this, we have made a cross-reading of these processes on 8 territories of extensive livestock farming (2 in South America, 1 in Sub-Saharan Africa, 2 in the Mediterranean region, 3 in the French mountains). This reading is based on three complementary considerations: i) the link between family and livestock farming (how the place of livestock farming evolves in the family and conversely the place of the family in the livestock farm), ii) the link of the livestock farm to space (what evolutions in land occupation, land use and forage resources) and finally iii) the link of the livestock farm to agro-food chains (how farm structures, marketing strategies and types of products evolve together).

After giving a few elements on the analysis approach and the different livestock farming territories, we will show how this cross-reading informs us about the diversity of adaptation paths and how this diversity is constructed around tensions between globalisation and territorialisation.

## **2) Methodology for the cross-analysis of territories in the North and South**

Our analysis approach is based on the comparison of territories with varied and contrasting contexts (geography, agriculture, economy, policies) marked by the dynamics of varied farming systems (orientation, dimension...). We will endeavour to identify by cross-analysis in features what are specific or common to the territories, generic elements on livestock farming dynamics (Ickowicz et al., 2010).

In the eight territories studied (Table 1) extensive livestock farming of ruminants predominates in a multitude of forms, and undergoes a variety of agricultural, soil, climatic and economic constraints. As for the societal context, it is changing and generating pressures or demands on livestock farming in every territory. Finally, the orientations and supports of national and international policies change and modify the framework of livestock farming activities.

Table 1: Main characteristics of livestock farming in each of the studied territories

<b>Territory / Country</b> (type of geographical area)	<b>Livestock farming systems</b>	<b>Pastoral resources</b>	<b>Agro-pedo-climatic constraints</b>	<b>Economic constraints</b>	<b>Society demand</b>	<b>Intervention policies</b> /
<b>Western Europe:</b>						
<b>Livradois-Forez / France (wet temperate mid-mountains)</b>	<ul style="list-style-type: none"> <li>•Family</li> <li>•20-120 ha</li> <li>•Orientations : dairy cow, beef cow, meat sheep, milk goat</li> </ul>	<ul style="list-style-type: none"> <li>•Permanent grassland (PG)</li> <li>•Temporary grassland (TP)</li> </ul>	<ul style="list-style-type: none"> <li>•Dry episode / grazing season</li> <li>•Fragmented field pattern</li> <li>•Poor soil</li> </ul>	<ul style="list-style-type: none"> <li>•Low production density</li> <li>•Low added value / products</li> </ul>	<ul style="list-style-type: none"> <li>•Open landscape</li> <li>•Human fabric and services</li> <li>•Local and quality products</li> </ul>	<ul style="list-style-type: none"> <li>•Deregulation market prices</li> <li>•Aid to income and investments for livestock farmers</li> </ul>
<b>Vercors / France (wet temperate mountains)</b>	<ul style="list-style-type: none"> <li>•Family</li> <li>•20-150 ha</li> <li>•Orientations : dairy cow, beef cow, meat sheep, milk goat, horse</li> </ul>	<ul style="list-style-type: none"> <li>•PG and TP</li> <li>•Rangelands (Ra)</li> </ul>	<ul style="list-style-type: none"> <li>• Dry episode / grazing season</li> </ul>	<ul style="list-style-type: none"> <li>•Practices required by productions under quality sign</li> <li>•Low added value / products</li> </ul>	<ul style="list-style-type: none"> <li>•Local and cultural landscapes</li> <li>• Complementarity agriculture-tourism</li> <li>•Biodiversity of grassland</li> </ul>	<ul style="list-style-type: none"> <li>•Eco-conditionality aid</li> </ul>
<b>Pyrenees / France (wet temperate mountains)</b>	<ul style="list-style-type: none"> <li>• Family</li> <li>• 20-180 ha</li> <li>•Orientations : dairy cow, beef cow, meat sheep, mixed crops</li> </ul>	<ul style="list-style-type: none"> <li>•Ra</li> <li>•PG</li> <li>•TP</li> <li>•Forage maize (FM)</li> </ul>	<ul style="list-style-type: none"> <li>•Wet episode / cutting season</li> <li>• Dry episode / grazing season</li> </ul>	<ul style="list-style-type: none"> <li>•Low added value / products</li> <li>•Variability cereals price</li> </ul>	<ul style="list-style-type: none"> <li>•Open landscape</li> <li>•Local productions</li> </ul>	
<b>Mediterranean hinterland: Alpine foothills and Cévennes / France (Mediterranean montains)</b>	<ul style="list-style-type: none"> <li>•Family</li> <li>•200-2000 ha</li> <li>•Orientations : meat sheep, milk goat</li> </ul>	<ul style="list-style-type: none"> <li>•Ra</li> <li>•Summer mountain pasture (Su)</li> </ul>	<ul style="list-style-type: none"> <li>•Water shortage / grazing season</li> </ul>	<ul style="list-style-type: none"> <li>•Sheep marketing chain with decision centre outside territory</li> <li>•Goat's milk chain in evolution with new PDO</li> <li>•Low production density</li> </ul>	<ul style="list-style-type: none"> <li>• Local products</li> <li>•Open landscape</li> </ul>	
<b>North and West Africa:</b>						
<b>Atlas foothills / Morocco (semi-arid mid-montains)</b>	<ul style="list-style-type: none"> <li>•Community</li> <li>•Areas of collective use</li> <li>•Orientations : meat sheep, meat goat</li> </ul>	<ul style="list-style-type: none"> <li>•Ra</li> </ul>	<ul style="list-style-type: none"> <li>• Dry episodes / grazing season</li> <li>•Degradation tree cover/ rangeland &amp; soil</li> </ul>	<ul style="list-style-type: none"> <li>•Low added value / products</li> </ul>	<ul style="list-style-type: none"> <li>•Local governance respecting customary law</li> </ul>	<ul style="list-style-type: none"> <li>• Biosphere Reserve / UNESCO</li> <li>•Regulations / forest preservation</li> <li>•Little aid to livestock farmers</li> </ul>
<b>Sahel / Senegal (semi-arid tropical plains)</b>	<ul style="list-style-type: none"> <li>•Community</li> <li>•Areas with no delimitation (transhumant systems)</li> <li>•Orientations : milk cow, beef cow, meat sheep</li> </ul>	<ul style="list-style-type: none"> <li>•Ra</li> <li>•Steppes (St)</li> <li>•Forage crops (FC)</li> </ul>	<ul style="list-style-type: none"> <li>• Dry episodes / grazing season</li> <li>•Degradation tree cover / soil</li> </ul>	<ul style="list-style-type: none"> <li>•Access to land</li> </ul>	<ul style="list-style-type: none"> <li>•Productions for urban centres</li> </ul>	<ul style="list-style-type: none"> <li>•Support import of feed products</li> <li>•0 price regulation</li> <li>•Little aid to livestock farmers</li> </ul>
<b>South America:</b>						
<b>Pampa / Uruguay (wet tropical plains)</b>	<ul style="list-style-type: none"> <li>•Family &amp; salaried workers</li> <li>•100-3000 ha</li> <li>•Orientations: beef cow, milk cow, wool sheep</li> </ul>	<ul style="list-style-type: none"> <li>•PG</li> <li>•St</li> </ul>	<ul style="list-style-type: none"> <li>•Very variable rainfall / grazing season</li> <li>• Variable quality soil</li> </ul>	<ul style="list-style-type: none"> <li>• Recomposition of marketing chains</li> <li>•Financing of agriculture by private industrial sector</li> </ul>	<ul style="list-style-type: none"> <li>•Maintenance "gaucho" culture</li> <li>•Reduction of agriculture policy costs</li> <li>•Production for export</li> </ul>	<ul style="list-style-type: none"> <li>•Regulations / forest preservation</li> <li>•0 price regulation</li> <li>•Little aid to livestock farmers</li> </ul>
<b>Amazonia / Brazil (wet tropical plains)</b>	<ul style="list-style-type: none"> <li>•Family &amp; salaried workers</li> <li>•100-3000 ha</li> <li>•Orientations : beef cow, milk cow</li> </ul>	<ul style="list-style-type: none"> <li>•Forest clearance (FC)</li> </ul>	<ul style="list-style-type: none"> <li>•Degradation soil</li> </ul>	<ul style="list-style-type: none"> <li>•Access to land</li> <li>•Financing agriculture by private industrial sector</li> </ul>	<ul style="list-style-type: none"> <li>•Protection of forests</li> <li>•Reduction of agriculture policy costs</li> </ul>	

The collection of information about the dynamics of livestock farming in each territory has made it necessary to create a common analysis grid to be completed with information of the same type: regional statistics, bibliography, interviews of local farmers and livestock experts. To devise and complete this grid, we relied in particular on the agrarian diagnosis approach (Cochet, 2011). The worked out grid has four information registers. The first one focuses on the present diversity of farming systems from the viewpoint of production factors (land, work, herd...), technical options (intensification level, forms of pastoralism...), nature and destination of products (milk/meat, export/local..) and activities complementary to livestock farming. The second concerns the changes in these systems which have marked the territory during recent decades, concerning the production factors and techniques, livestock products, complementary activities. The third register focuses on local socio-economic dynamics which have been crucial for these systems changes in recent decades, in the territory, the agro-food chains, in demography, employment and services. Finally, the fourth concerns changes in policies, regulations and markets, significant for the transformation of systems (e.g. production quotas, premiums, eco-conditions, prices fluctuation).

The monographs elaborated on each territory by each research team involved (Rapey et al, 2012) served as a basis for the cross-reading of the system dynamics.

### **3) Dynamics which reexamine the links between family and livestock farming**

Theorists differentiate family farming from non-family farming on the basis of land and business ownership arrangements and the organisation of management and labour, together with household consumption and the reproduction of labour power (Gasson et al., 1988). Thus, common to all typologies is an emphasis on the coincidence of the farming activity and household and, by extension, the interdependency of the two domains (Gray, 1998), namely, in the territories studied: the place of livestock farming in the family and conversely the place of the family in livestock farming. We will show how present-day dynamics are reexamining these links between family and livestock farming.

#### **3.1) The place of livestock farming in the families**

On all the territories, the trends observed concern modifications to the economic centrality of livestock farming for families, sometimes leading to the family to abandoning livestock farming.

The first trend is the diversification of the farming and non-farming activities of the family. In the Vercors/France, in 2000, only a quarter of farming households had an exclusively agricultural activity. On French territories farmers' wives increasingly work outside the farm. In the Sahel/Senegal, after diversification in the type of livestock farming practised (development of sheep farming), heads of families, women and young people are offering their labour to agro-industries (for example the Sugar Company in Senegal) or to rice-farmers seasonally when the demand for work is at its height. In the Arganeraie/Morocco, diversification is the dominant feature of family systems which combine the cultivation of the argan tree with goat farming.

A second trend concerns movement in the opposite direction to this diversification, where families refocus on the livestock farming activity. This may be linked to evolutions in other sectors of activity as in the Livradois-Forez/France, where the restructuring of the timber industry and the decline in artisanal and industrial activities has led to a considerable drop in dual activities in households, or in the Cevennes/France, where the creation of a dairy cooperative has caused some of the diversified farms to specialise in goat farming.

This is accompanied by an evolution in trades during changes in the production system as for example when a dairy farmer goes over to meat production in the Livradois-Forez or the Vercors,

or when new businesses are set up, such as cheese processing, direct sales, or host farms, where it is no longer a question of just producing, but of developing know-hows relative to processing, sales, tourism service activities... (Dedieu et al., 2010), which is particularly evident in the French territories. These changes are redefining the place of livestock farming for the different family members. Farmers' wives have been able to find a place in the livestock farm by developing a diversification activity of their own, incidentally bringing recognition of their work (Giraud, 2004), which was not necessarily the case when they were helping their husbands on the farm.

Another trend concerns the partial to total abandonment of livestock farms by families, with the heads of farms/owners and their family who no longer live on the farm, as in South-American territories, and who entrust its management to paid employees. Today, faced with the demand for land rental by agribusiness and forest plantations in Uruguay, farmers can choose to rent out part of their lands to a forestry enterprise or to a *pool de siembra* (planting pool) sometimes to both. They then receive a land rent whose amount is the same or even more than they would earn from direct farming, without the inconvenience and the risk. Land pressure and urbanisation in French territories can also lead to this type of situation, in particular to some land being let by farmers who are retiring, or to the sale of agricultural land. In fact, in all the territories, the development of livestock farms has only been made possible by the abandonment of many other farms. In the Pyrenees/France, the enlargement of farms was made possible by the disappearance of more than half of the farms between 1970 and 2000, because they were not viable or because there was no successor. There were many bankruptcies in Uruguay in the late 1980s, under the combined effects of a severe drought, the wool crisis, the collapse of most agricultural prices, and the dollarization of debt in Uruguay, for farms which had taken out loans in previous decades and were unable to pay them back.

### **3.2) The place of the family in the farms**

The place of the family in the livestock farm is evolving, and questions the reproduction and transmission of the farms. The importance of the reference to family inheritance on French territories presents difficulties in taking over farms within families, makes way for installations outside the family framework, for a heterogamy of farmers (Giraud and Rémy, 2008). The 'household-centred' social system characteristic of the Pyrenees embodies the maintenance of this transmission in a family framework, even if the number of generations living together has reduced and has focused on the farmer household. In the Cevennes/France the development of the sweet onion, associated with sheep, can lead to the abandonment of sheep farming when the father who used to look after the sheep retires. In Senegal, in the encampments, which are the livestock production units, where different households of the same family live together, the trend is to fragmentation as soon as possible. In the extreme case, in systems involved in agribusiness, caught in the dynamics of globalisation, the reproduction of livestock farming can slip away from the family. Other scales of decisions also play on the reproduction and transmission of livestock farms, as for example in the Alpine foothills, where local policies are not directed to just farming interests and land then escapes from farmers' families, or in the Moroccan Arganeraie, where the usual law, which traditionally governs access to land, is jeopardized by pressures exerted by the oil industry and the Waters and Forests department.

The place of the family in livestock farming is also evolving via reorganization of work in the livestock farms. A common trend is the increasing recourse to paid workers to carry out work on

the farm because of the defection of the family workforce (Madelrieux et al., 2010). In Uruguay, Amazonia or in the Sahel, a significant rural exodus has been observed over the last three decades, in particular of young people going to the towns to find better economic conditions and family life, with access to health and education systems, an exodus which affects the land and labour markets. In French territories, where the rural exodus has been able to make room for 'rurbanisation', it is the couple and the children who no longer systematically work on the farms. But at the same time, livestock farms are becoming larger and specialised or are diversifying, and the need for labour is not completely offset by mechanisation. Work collectives are evolving, going from family forms to salaried forms, but also to new non family forms such as corporate forms and the exchange and delegation of work. In the Pyrenees, to face up to constraints of work and employment, new modalities of collective organisation are emerging: employer groupings for land clearance, cutting enterprises, farmer stores, departmental marketing platforms...

#### **4) Dynamics which lead to modifying land use and forage resources**

By definition, so-called « extensive » farms rearing ruminants, which interest us here, all have an extensive spatial hold on territory, with two consequences. On the one hand, it confers a specific influence on livestock farming in the functioning of the territory, since it occupies a large part of its surface area, and manages to make use of it in spite of constraints. But on the other hand it makes food systems relatively vulnerable when faced with possible changes in the functioning of the territories, in particular in its land and climate dimension.

On all territories we can see disturbances in grazing systems. Feeding exclusively on grass and on vast areas is declining in all the systems studied, for reasons that come under four categories, sometimes in combination. For one thing, competition for land use is increasing, in particular with the production of grain or wood (Pampa, Amazonia, Sahel, Moroccan Arganeraie), but also with urban sprawl (France). On the other hand, new regulations against deforestation in Amazonia or the Pampa, and developments such as rice paddy fields in the Sahel, limit the access of livestock farmers to land. Thirdly, market requirements push livestock farmers towards more productivity and to the purchase or cultivation of food supplements for the animals. Finally, increased constraints of agriculture, soil and climate such as more frequent or more severe droughts, lower soil fertility, (Pampa, Amazonia, Sahel, Moroccan Arganeraie), the pressure of invasive species (Amazonia, France), motivate technical changes in particular towards the integration of agriculture and livestock farming in different forms. The abandonment of the most distant fields or the ones that are the most exposed to climatic hazards, the abandonment of intermediate areas or collective uses (French mountains), so that scrub invasion and diversification of land uses are extending to the detriment of agro-pastoral uses which in the past made good use of these areas.

Recourse to bought-in feed often creates a new link with the world market for the farm, as the price of these feedstuffs depends on fluctuations in world prices. These supplements are not bought systematically though: in the French montane zone, grasslands are sometimes given over to cereal cultivation, and in the agro-pastoral systems of West Africa, cattle consume crop residues. Even if the systems are still very much anchored in forage areas, we can note that the link of livestock farms to the land is changing and becoming more tenuous.

An opposite trend is also to be seen, although in a slighter way for the time being; a return to local forage and grassland resources. The first reason is the desire for greater self-sufficiency in feed for the animals in response to the growing cost of cattle feed. This modifies, even strengthens the livestock farm's link with the land. New extensions or managements of forage areas are

appearing (hay-making, silage, browsed forage, terracing in the high summer pastures, cultivated grasslands), freeing space for other uses.

The second reason for going back to local grassland resources is associated with the emergence of specific demands from consumers as to the quality and local attachment of products. It also comes from the livestock farmers looking for added value in products -milk and meat- in opposite to lower-cost products in regions close to intensive livestock farming. Certification authorities - concerning the quality and geographical origin of products- define specifications in which the use of local forage resources is a requirement. However, these requirements come up against constraints of distance from the farmstead, access, soil fertility, and the workload of farmers. These strategies are developing in France, but they are in their infancy in South America and nonexistent in West Africa. In some cases they can be tools to regulate environmental impacts on the farm, and develop productions which, without support mechanisms, would tend to collapse in face of the economic efficiency of more intensive systems.

##### **5) Dynamics which modify the links of livestock farms with the agro-food chains**

Two dynamics can be observed on territories. The first, which is to be found everywhere, is expressed by : (i) an increase in the volumes produced per livestock farm and per worker, also linked to the enlargement of structures and (ii) the simplification of the range of products marketed (in the first marketing, by the livestock farmer), along with a reduction in on-farm consumption. Thus in Uruguay, large dairy or fattening structures are appearing, with several hundred, even thousands of heads of cattle, which sell for export either directly or via cooperatives. This enlargement logic is also to be found in France, for milk (Vercors, Pyrenean foothills, Livradois-Forez) and meat (Alpine foothills, Pyrenean foothills). It is accompanied by an increase in production level per animal, made possible by the increased use of feed with high nutritional value (maize, sorghum, soybean) and a larger proportion of cultivated grasslands. It is often associated with farm specialisation, as in Livradois, where the mixed milk-meat farms have ceased rearing suckler cattle in recent years. This dynamic of increasing volumes and simplifying the range of products marketed, is concomitant with the concentrated transformation by takeover and/or merger by enterprises (with private or cooperative status) in France (Napoléone, 2002) and in Uruguay. These enterprises seek to control the collection costs (higher price of diesel and lower density of producers on the territory in France) and need regularity in quantity and quality of the supply all through the year. So the rounds are simplified or eliminated, and livestock farmers are urged to stagger or shift their production (Peglion, 2011). In such a context, farms modify their territorial integration. Specialised livestock farms are concentrated in the most favourable and most easily accessible areas, and medium-sized and mixed production structures are disappearing.

The second dynamic corresponds to the maintenance or appearance of small livestock farms, with diversified productions, using above all local forage resources. In Cevennes, associations between sheep production and sweet onion cultivation are still very frequent (Aubron, 2011). In Vercors and in the Livradois-Forez, during the 1990s, in response to the setting up of of milk production limitations, dairy farms introduced beef production. Today, some of them are developing processing and sale of their products; the functioning of farms and the professional identities of livestock farmers have undergone profound changes. This second dynamic is widely observed in territories because of the milk and meat collection constraints (mountain region, low production density...), and because of the fragmentation of local sectors in milk and meat, with a reduction in the number of intermediaries between producers and consumers (short distribution

channels), even a disappearance of these middle men (direct sale), and shorter distances travelled (local distribution channels).

At the crossroads of the two previous dynamics, there are some small and medium-sized milk collection and processing structures which still exist and are even gathering strength, and which have their own strategy and decision centre in the territory. These locally established structures (Vercors Milk Cooperative, Cooperative of Moissac in the Cevennes, Laiterie de Fournols in Livradois-Forez or Laiterie du Berger in the Sahel), are an important issue for the maintenance of milk collection and processing, and of the farms and productions concerned.

For these two major trends presented, the quality of livestock farming products and the reference to the territory are promoted differently by producers and operators. In the first trend, downstream industrialisation is accompanied by a standardisation of this quality. This is very much in evidence in Uruguay, for example, where the appearance of a lean meat sector and the concentration of slaughterhouses led to the adoption of greater transparency in the slaughtering process. This industrialisation also brought about a segmentation of the market, organised around a standard, not very typical product, above all respecting standards of hygiene and safety, accompanied by trademark products and/or certified under official signs of quality and origins SIQO<sup>1</sup>. This is the case in the Alpine foothills, where the standard lamb called "French" co-exists with 'Label Rouge<sup>2</sup> – IGP<sup>3</sup> "Sisteron Lamb")

If the reference to the territory is widely called upon in product marketing, there is not always agreement on what local means: some people put forward the link with the terroir (AOP<sup>4</sup> and IGP), others a production which respects the environment (organic farming), again others develop the link between the product and the ethnic group that produce it (Peulh Milk). In Morocco, both for argan oil and for the kids of the Arganeraie, the reference to the terroir is much more a sales pitch than an element with an objective basis. In our study territories, in milk, this reference to the territory is used above all by small structures to ensure their still uncertain fate, whilst in meat, it is used above all by large scale operators to segment their market and guarantee for their producers a higher price than that of the national or international market.

## **6) Between globalisation and territorialisation: a diversity of adaptation strategies**

Our comparative analysis of the adaptation dynamics of family livestock farms in territories of extensive livestock farming shows that everywhere livestock farming is torn between two driving forces for change: globalisation (world markets, global environmental issues, health crises...) and territorialisation (good use of local resources, local environmental issues, shorter distribution channels, enhanced value for specificities...). The adaptation strategies of livestock farms are diverse and we illustrate this via stylised examples or archetypes of dynamics going into the direction of these two driving forces.

### **6.1) The path of globalisation**

A first archetype of dynamic corresponding to this category, to be found in particular on the territories of South America, is qualified as « business ». Farmers choose to come within a globalised agriculture, turned towards agribusiness and export. Paid staff replaces the family

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<sup>1</sup> Signe d'Identification de la Qualité et de l'Origine *i.e.* Quality and Origin Identification Labels

<sup>2</sup> Red Label, a sort of SIQO

<sup>3</sup> Identification Géographique Protégée *i.e.*; Protected Geographical Indication

<sup>4</sup> Appellation d'Origine Protégée *i.e.* Protected Designation of Origin

workforce, as the farmers and their families often no longer live on the production unit ('disagriculturalisation' of the family and defamiliarisation<sup>5</sup> of the livestock farm). At the same time, the productions come within long industrial distribution channels (standard products) for the world market.

In the mountains of France, this globalisation path takes another form, that of « agricultural entrepreneurship ». The family places its project in an enlargement and specialisation of their livestock farm, all the members work only on the farm. "Business" uses paid workers (agriculturalisation of the family and defamiliarisation of the farm). The animal products are standardised and sold on industrial, relatively long channels. Finally, the production of forage is intensified, the environment artificialized. Recourse to feed coming from outside the territory is frequent.

## **6.2) The path of territorialisation**

In all the territories, the path of territorialisation is chosen by livestock farmers which are refocusing on resources and agro-food chains that are firmly established in the territory. In this dynamic qualified as 'traditional', the family lives from and on the production unit and delivers its production locally. The 'agriculturalisation' of the family and the 'familiarisation' of the livestock farm persist. Animal products (milk and meats) are intended for local cooperatives, small cheese dairies or small industries. Marketing channels are relatively short and are often made profitable by a distinctive appellation linked to the territory or to the quality of the product (AOC, organic, label ...). Farmers seek self-sufficiency in feed and limit the use of inputs by developing or redeveloping strategies using rangelands.

Another category comes under this territorialisation path: « rural entrepreneurship » (Muller et al, 1989). This dynamic is founded on a diversification of professional and farming activities in a functioning that is still family-based. In these dynamics of territorialisation, local know-hows and the 'peasant' character (production in the framework of family-based agriculture using local resources) are just some of the arguments in the direct sale, e. g. between producers and consumers of farmhouse cheeses such as the Pélardon (in Cevennes), of yoghurt made with zebu milk in Senegal, or of trays of lamb in the South-East of France, and beef in Livradois Forez and in the Pyrenean foothills.

## **7) Discussion-Conclusion**

The cross-reading of the transformation processes of family livestock farming at work in territories of extensive livestock farming in the North and South has made it possible to identify trends shared between territories. In spite of very different economic, political, social and environmental conditions, the cross-reading provided insight into the variety observed in the 'paths to last' followed by farmers within each territory and between territories and showed how this diversity was organised around two strong trends: globalisation and territorialisation. These trends are not seen with the same intensity depending on the territories. As they are nonetheless to be found everywhere, these trends partly explain the diversity of systems coexisting in the territories and interacting in different ways with the markets. Thus, tensions and complementarities are formed and reformed at different scales.

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<sup>5</sup> The dynamics observed question the « disagriculturalisation » of families (less room for farming activity in the families) and the « defamiliarisation » of farms (less involvement of the family in the farm) (Gonzales and Benito, 2001).

Within the territories, the diversity observed can be a source of tensions, notably at the level of the shared use of resources (competition for straw, for example, between livestock farmers and crop farmers, or for the appropriation of the measures of territorial governance in Morocco). Tensions can also be expressed at the farm scale, as illustrated by the Moroccan terrain, where the production of argan oil is dedicated to a world market, whilst goat farming is dedicated to a local market. The development of the oil sector is happening at the expense of local food habits (and incidentally cosmetics), and to the detriment of the rearing of kids and of the ecosystem of the Arganeraie.

This diversity makes nevertheless complementarities possible, that are expressed within the farm. For example, some farmers choose to hybridize their marketing methods (associating short and long distribution channels) to make their income secure. On a territorial scale, in the Livradois-Forez for instance, large professional farms use the flatter, less split-up areas and small farms with several activities the more sloping and fragmented areas (Rapey et al, 2002). The complementarities between systems are also expressed via products sold and their marketing method, as some products are intended for mass or urban consumption, others for a local or touristic population. This local variety in farming systems could be an advantage for local agriculture to cope with a challenging context thanks to the diversification within the territory (Veysset et al., 2005).

This work is a first step in our comparative analysis of the dynamics of livestock farming in territories of extensive livestock farming. It still requires deeper analysis and validation, that are planned to take place in the continuation of the MOUVE research project, notably because the dynamics we have emphasised modify the position of livestock farming in the territory, its influence on agricultural production and the environment, but also its role in the local society.

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