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Farming styles and local development: a European perspective.

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Introduction

European farms, between the social and natural systems, are the main actors of the sustainable development in a territory. Because of their diversity, their different types of production systems or management, they contribute to build the landscape, develop the local economy, maintain the domestic and wild biodiversity and underlie the food self-sufficiency and security. However, European agriculture is regularly reconsidered: too intensive, too dependant in protein and not aware of environmental issues. The European farming models, since the end of the Second World War and with the enlargement in the eastern part tend to standardize. The abuses of the eighties and nineties seem to have been stopped. We can notice that thinking about sustainability of the farms, biodiversity, environment, but also local and rural development, with the increase of short distribution circuits, niche market and new way of production and consumption are becoming more and more important. In order to continue to progress in this direction in keeping a competitive European agriculture generating employment, it is necessary to understand what are the factors who influence farms sustainability, on the basis of its three components: agro-environmental, economical and socio-territorial. In the socio-territorial component, we will observe more precisely the local development components related to the material and social quality, to employment and services and to ethics and human development. The effect of the structural, geographical and management characteristics of the farms on their sustainability and their involvement in the local development will be analysed.

The questions are: Can the diversity of the European farming systems help to identify ways to a better sustainability? What systems offer better conditions to support rural development?

1. Material and Methods

1.1. Qualitative evaluation of sustainability:

Fifty height farms from West (Ireland: 6 , United Kingdom: 11, Netherlands: 6, Denmark:3), Center (Belgium: 5, Germany: 8, Switzerland: 4), South (Italy:4, Slovenia: 2, Croatia: 1) or East (Czech Republic: 2, Slovakia: 3, Poland: 3) Europe have been surveyed using semi-directive interviews and farms visits to complete missing information on animal welfare, natural heritage or ecological patterns. These interviews enabled us to inform the 42 criteria of sustainability proposed by the IDEA method (Vilain *et al.*, 2008) in a qualitative way on a three-level scale (bad, acceptable, good). The DEXI decision support system (Bohanec *et al.*, 2004) was then used to aggregate criteria and evaluate the agro-environmental, socio-territorial, economical performances and the global sustainability of the farm in using five levels of scoring : from very bad to very good.

1.2. The farms

The farms, (35 from lowlands, 20 from hills and 3 from highlands), conducted in a familial (48) or managerial (10) way, ran cultures or arboriculture (5), pork (2) or ruminants (dairy: 40, meat: 6, mixed: 5) in herb (9) or poly-culture and livestock (42). They were surveyed on a voluntary basis. In each country, the interviews with farmers were dependant from our opportunities and from our first contacts in the area. So, the farms analysed are not at all representative of the country, but they express a large diversity inside the production systems, especially for the dairy farms.

1.3. Statistical analyses

A descriptive analysis of the scores has been first performed in order to identify the sustainability characteristics of the sample. Then, in order to draw a typology of the systems and to identify their links with the sustainability components, a Multiple Correspondence Analysis (MCA) has been conducted on the basis of the characteristics

of the production systems (farm structure: 6 active variables; localisation: 2 illustrative ones) and the global sustainability, its agronomic, social and economic components, and 15 criteria linked to the local development (quality of food, landscape, accessibility, social implication short distribution circuits, multi-activity and services, employment, collective work, long-term sustainability, world-wide equity, training, work load, quality of life, loneliness, hygiene and security).

2. Results

2.1. The global sustainability and its three components

In the sample analysed, in the almost all cases, the farms have an "acceptable" sustainability score. The same is observed for the agro-environmental and socio-territorial components. At the economical level, results are more balanced with a slight superiority of "good" score.

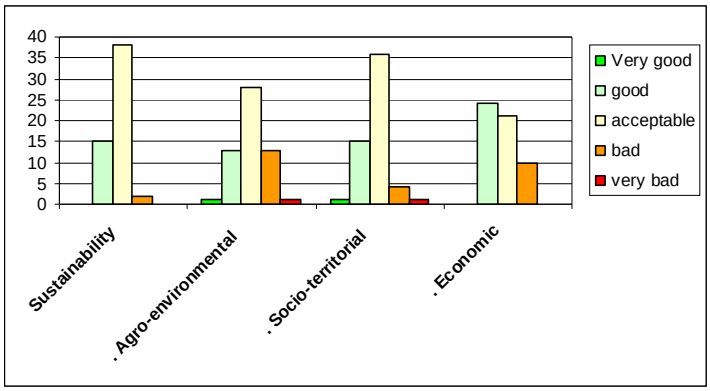

Figure 1: Distribution of the results on the three components

2.2. The agro-environmental components

On the environmental level, the farms analysed generally show a low diversity in their crops and in their livestock breeds (Holstein for dairy cows).

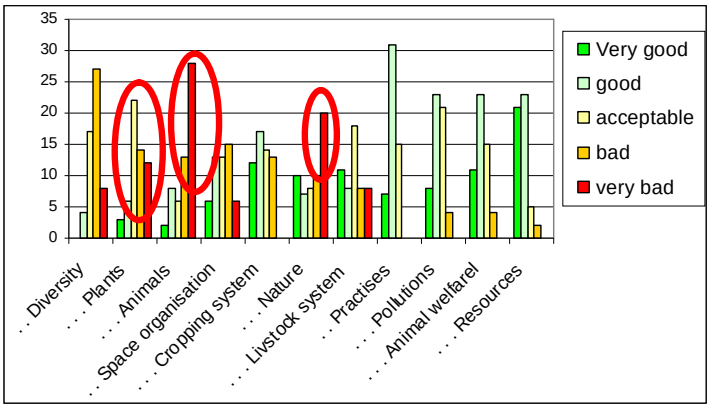

Figure 2: Distribution of the results on the agro-environmental component

This makes them more vulnerable to the pest and to the increase of inbreeding.

We can also notice that semi-natural areas in favour of the biodiversity are not very common in the systems analysed.

2.3. The socio-territorial component

When focusing on the socio-territorial component, farms show a good quality of life and social integration. But farms more specialised usually not offer a lot of services to the territories and are not very much self-sufficient because of imported products (such as soybean).

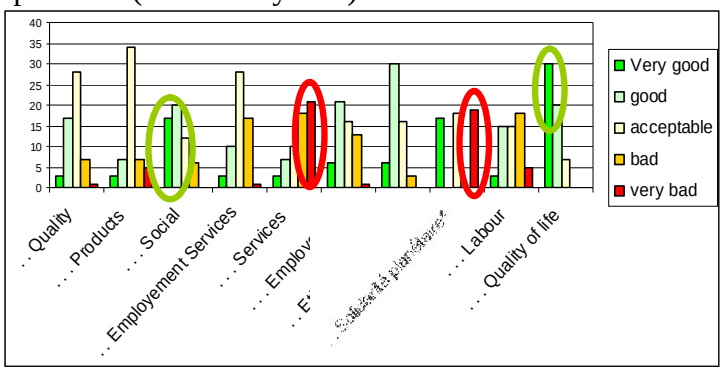

Figure 3: Distribution of the results on the socio-territorial component

2.4. The economical component

On the economical level, the farms sampled are, in the majority of cases, very economically efficient. But, as it had been said in the last paragraph, the specialisation of some farms make them very dependant on markets. It's a real danger for their long-term sustainability.

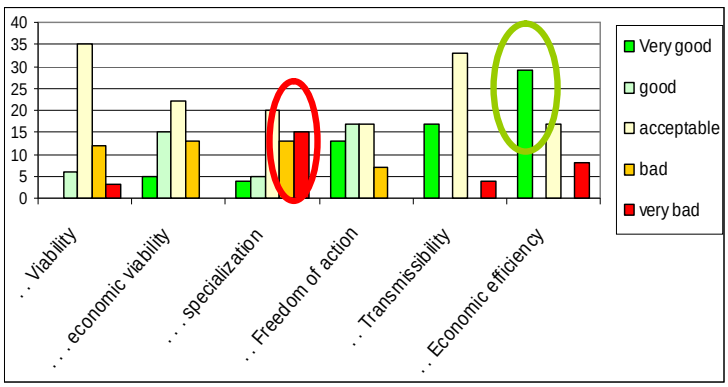

Figure 4: Distribution of the results on the economical component

2.5 Systems typology and sustainability

Seven types of systems, in three groups, have been identified by the MCA analysis. Figure 5 shows the relationships between these systems and the structure parameters, and Figure 6 presents the systems and the sustainability attributes.

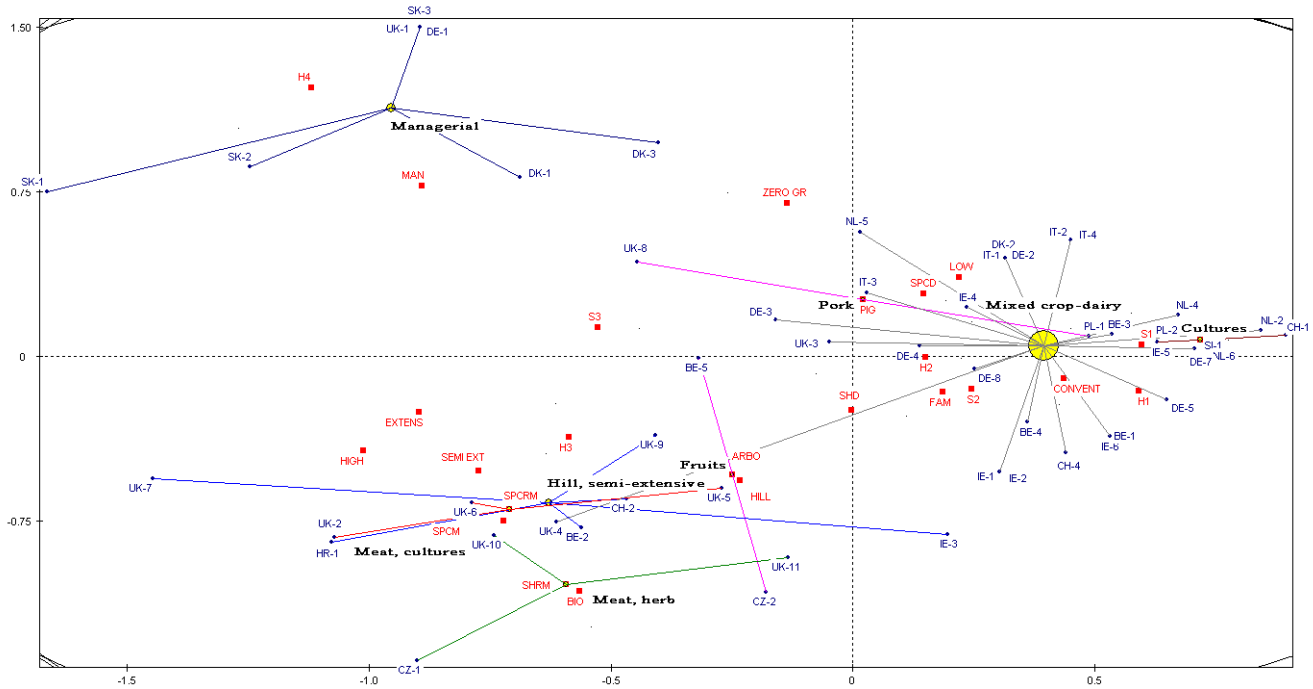

Figure 5: Multiple components analysis: the 8 types of systems identified

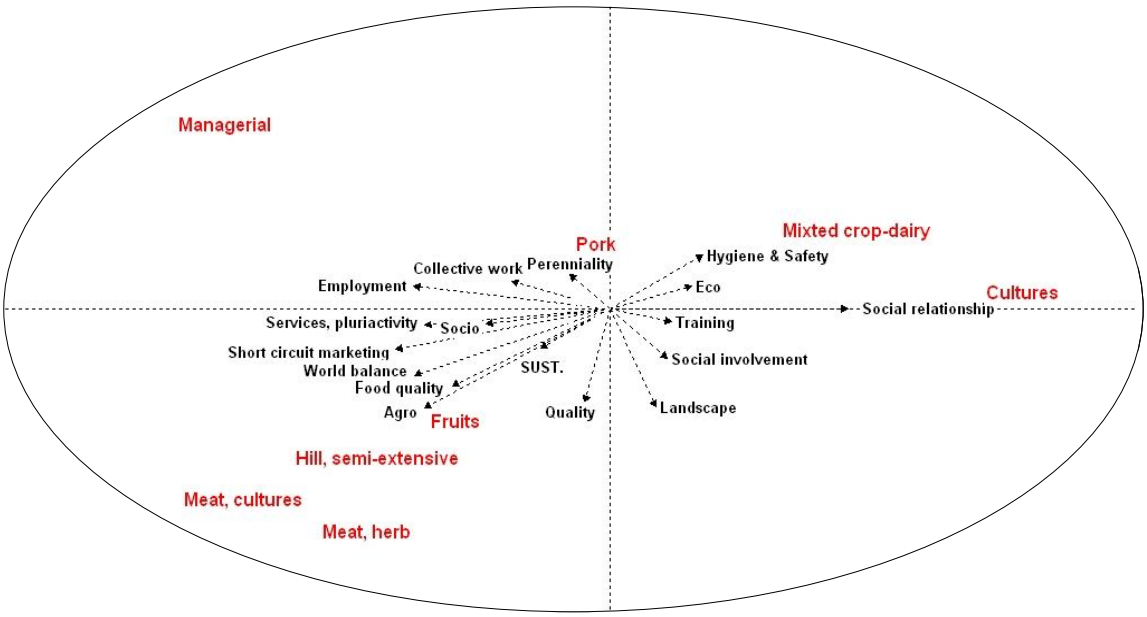

Figure 6: The sustainability components of the 8 types of systems.

The first group (and type) ("**Managerial**", N=7) is constituted of managerial farms with large areas and workforce; the 4 "post collectivism" and 2 Danish farms are in this group. They have high scores in labour and services. It's seems logical when considering their diversification and the services they propose (especially for the post collectivism farms). In contrast, the level of sustainability for agriculture practises and resource protection is bad. In a socio-territorial point of view, theses farms are not good for landscape protection, quality of buildings or their contribution to rural activities and social links.

The second group (N=13) aggregates hills' areas farms (84% of them), characterised as extensive or semi extensive, with a good representation of UK farms based on sheep or cattle. This group is characterised by a good level in agro-environmental sustainability, especially in nature and practises criteria, but the economic level, such as economic efficiency, is not so good. It is composed of three types: "**Hill, semi-extensive**", "**Meat with cultures**" such as those observed in England, developing services and multi-activity, and "**Meat on herb**", as in Scotland, with lower scores in training and social relations.

Extensive or semi-extensive farms in difficult areas are more often submitted to structural constraints (animal grazing, level system of sheep production in UK, specifics practises who are better for environment), but they are also much dependent on European subsidies. These multi-crops and extensive livestock English systems have good mark in services activities.

The third group includes 38 farms, almost all in plain, and is composed of 4 types: **"Mixed crop-dairy"** (N=31), **"Pork"** (N=2), **"Cultures"** (N=3), **"Fruits"** (N=2). These farms present some weaknesses on agro-environmental, space, nature, labour components, especially for 20 dairy farms in zero-grazing or with an important dairy livestock. This is not surprising for intensive farms close to an urban area.

All the farms considered in conventional systems and an important part of those who are in mixed multiple crops - dairy farming systems are in this third group. This group is characterized by low scores for criteria which are related to local development and services to the territories. However 13 farms, smaller than the others, and mainly dairy farms with grazing, are marked by a good efficiency in the use of resources.

3. Discussion

First, it is important to underline that logical groups with distinct sustainability profiles have been highlighted among the sampled farms. Each group show different contributions to the local development.

The dairy farms very capitalistic from northern Europe and the "post-collectivist" dairy farms from Eastern Europe are gathered in one group, and they show a low contribution to the socio-territorial development. However, some of them, especially from Eastern Europe, play an important part in maintaining the employment and services in their area; thus, they are involved in the local development.

Farms with mixed crop and livestock in extensive models show another side of the contribution to the rural development. These farms generate positive externalities like the landscape and biodiversity maintenance in using several local breeds or thanks to their extensive patterns. This has a direct impact on the new users of the countryside who come from big cities and who consider that this area is "only" a leisure and nature area.

Farms that seem to be the most in a difficult condition in integrating themselves in the territory are the very intensive dairy farms next to urban area. The niche market or short distribution services seem to be not easy to set for these farms.

Conclusion

Different types of contribution to the sustainable development and three factors linked to the sustainability of farms have been showed in this study.

The farm structure is identified as an explicative factor of the sustainability. The extensive grassland systems or the organic patterns for example contribute a lot to the sustainable development, whereas the intensive dairy systems are distinguished by their low environmental skills and their low offer of services to the territory.

The socio-economical past and the local background are also important factors. In general, UK farms are characterized by good agro-environmental performances, and that is very linked to the rural development politics carried out in this country. In the eastern part of Europe, we can also notice the influence of the collectivism past: farms are distinguished by an important diversification (several crops and livestock productions, local processing, additional activities like cafeteria, transport…) and by a high contribution to the local employment.

The farm management is a predominant side of the rural development, because it sets the objectives of the farm. The human factor is very important, especially about innovation, social linkage or the communication of knowledge.

Finally, at the present time, among the diversity of systems sampled in this study, a few fulfil all the objectives of the sustainable development. By the way, the important diversity of the farming systems in Europe tends to be more and more standardized. But this diversity seems to be an essential resource to contribute to the evolution of the European agriculture towards a sustainable development of territories.

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