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The cattle farming development in la Reunion requires new forms of territorial coordination

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Abstract

In Reunion Island, the dynamism of the livestock farming sector together with a policy of support for the "Outermost Regions" and the development of the "Hauts" (heights) led to the appearance and expansion of the dairy and suckler cattle industries structured over a time span of 20 to 30 years. With 500 breeders, the two cooperatives are developing the production of milk and meat, which is respectively of 21.8 million litres and 1500 tonnes. They declare that their targets are to approximately double the production by the end of the decade. Combined with those of the sugar cane industry, these targets appear difficult to reach, in the present situation of land speculation and town and country planning. We put forward the hypothesis that the farming industries must seek new forms of territorial coordination, for the continuation of their development. Complementarities must be found between the sectors, as forage and effluents transfers between lowlands and highlands. This evolution has to take part of the future changes on environmental standards (setting up of a National Park). We present some examples of the research work undertaken by the Cirad cattle-farming centre in partnership with the production and processing networks, for the purpose of providing references and decision support tools.

Keywords: Reunion, cattle farming, organisation of production, processing networks, coordination of the actors

Introduction

With a surface area of 2512 km, La Reunion is a mountainous island with only 17% of this area reserved for agriculture (Agreste Reunion, 2001). The population, which is concentrated for 85% in the littoral region, is on increase. From 706,300 inhabitants at the last census, it will exceed one million inhabitants by 2030, according to forecasts. This is marked by a high unemployment rate, which was 31% in 2002. The urbanization sustained by the population growth is penetrating into farmlands particularly into the coastal regions.

These facts enable one to assess the contradictory demands focused on agriculture, which has to participate in maintaining employment, and in taking care of the territorial balance of the population between the littoral and the interior even though the farmlands have reduced (a loss of 6500 ha of agriculture land between 1988 and 1999).

As far as agriculture is concerned, recent history of Reunion has been marked by two major phenomenons:

- A decline in the surface cultivated for sugar cane (from 45,000 ha in the sixties to 26,000ha today) as a result of urbanization and diversification (the development of market gardening and fruit cropping),

- The setting up and development of the dairy and suckler cattle industries in the highlands. This livestock farming was seen as a credible alternative to stop the rural depopulation - from the highlands to the lowlands – resulting from the geranium crisis during 1960-70. In 1978 the development plan for the highlands set out the terms for a land-use policy granting specific aids to livestock farming.

In the 1999 census, the number of farms was 9300, for an agricultural population of 35,000 people (Agreste Réunion, 2001). With 4800 planters, sugar cane represented more than half of the arable lands (table 1). The livestock industry came in second place with more than a quarter of the A.A (Agriculture Area in use) taken up by the surface always in pasture and the feed crops. In economical terms, the sugar cane production and the animal production were equivalent. However the fruit and vegetable production which exceeded in value the previous two productions, uses the least land.

The beef and milk cattle production only represents 21% of the total of animal production, as a result of a very developed off-soil production (pork and poultry). The cattle sector, on the other hand, takes up the main part of the agricultural surface intended for livestock farming.

Table 1: The main data of agriculture in Reunion Island

	A.A	*Farms*	*Agricultural production*
Sugar cane	25,923 ha (59.3%)	4,777	31.0 %
Livestock	11,137 ha (25.5%)	3,980	31.1 %
Fruit and vegetable	4,241 ha (9.7%)	4,389	34.8 %
Others	2,391 ha (5.5%)	-	3.1 %

Source: agricultural census 2000 (Agreste Réunion, 2001)

Organization of the cattle sectors

The milk and beef cattle sectors have been shaped on the same model. Production is organized around a cooperative structure, which buys and collects the products (milk, calves, store animals, young bulls). Prices of milk and meat (by litre or kg) are guaranteed thanks to specific aids from EU and inter-trade agreements with transformation and distribution sectors. The cooperative equally assures a technical advice support for the producers to help them to fit into the sector. The advices are mainly related with feed supply, genetics, animal housing and milk quality. These cooperatives are in very close contact with the supply structures (fodder…), also slaughtering and processing thus reducing transaction costs and price fluctuations of inputs and products. This is allowed by multi-year agreements between the different sectors through negotiations into a “joint-trade organization”.

This very structured organization has been made possible by specific aids granted to Outmost Regions and negotiated with the European Union within the framework of POSEIDOM. These aids allow, on a period of 20-30 years, structuring the farms, assuring supply in inputs and supporting production. They are either granted directly to the farmers (to purchase animals, for breeding improvement or through flat-rate aids) or to the organizations (helping importation of ingredients for feed production, milk collection and technical assistance).

The flate-rate aids granted to the cattle farms in the highlands have conditions with respect to standards linked to the products (milk quality, store animal scoring), to breed improvement and, in a general way, the implementation of good practices concurrent to the improvement of the farms performances.

These terms of organization allowed for the development of a cattle production. The dairy production has passed from 2 to more than 20 million litres in 20 years. The dairy cooperative (SicaLait), which gathers nearly 150 breeders, federates almost all dairy farmers (table 2).

The “model” farm supported by SicaLait is that of the “viable family farm”. For that, it has made the choice for specialisation and set a target of 40 dairy cows for a production of 240,000 litres per year. This target is not yet reached by a majority of farms (actual average 28.5 cows) so that all of them benefit from aids to reach it. For instance, an aid is granted to the farmer to purchase animals till a number of 40 cows.

Although less spectacular, the beef meat production has also increased over the last 20 years: it has passed from 1000 to 1500 tonnes. The share of SicaRevia (Sica Reunion Viande) has increased from a third, 20 years ago, to 70 % today.

Table 2: Structure of the cattle farming cooperatives

	Number of livestock farms	Number of cows	Average number	Production
SicaLait	149	4,255	28.5	21.8 10^6 L milk
SicaRevia	120 (calf producers) 130 (fatteners)	4,423	36.8	1051 T meat

Source: SicaLait, SicaRevia – 2001

The SicaRevia structured the sector according to a geographical model, with the setting up of calf producers in the highlands and fatteners in the lowlands. In the first system, the cows are led to the grazing according to a semi-extensive farming method and, in the second, the store animals (males and females) from the calf producing farms are fattened at the trough during 10 to 12 months.

Even if some of the calf producers are specialized, on the contrary of dairy production there is no orientation towards the specialization. Diversification is practically the general rule for the fatteners, composed by a majority of small workshops of 20 to 30 heads, which represent a complementary source of income in addition to another farming activity (in particular sugar cane).

These two cooperatives represent 500 livestock farmers and have generated 3 to 4 times more jobs either directly (fodder, technical services, slaughtering, processing…) or indirectly.

Objectives of the sectors and local development

The local production respectively covers 20 % and 30 % of the local consumption of dairy and meat-based products. The cattle sectors aren't limited by the market, which allows them to announce growth production objectives that will be supported by an increase in livestock.

The priorities of SicaLait are to establish the viability of present farms and allow new livestock farmers to set themselves up. The resulting objectives are to increase animal performances and to reach a medium sized farm of 40 dairy cows. This results in a total production of 40 million litres by the end of the decade. This production increase also responds to an increase in the demand and consumption of local cheese products.

SicaRevia who is faced with a chronic shortage of store animals to supply the fattening units wants on the same route to achieve a stock of 7000 suckler cows by establishing new calf producers.

These combined objectives represent an increase of at least 5000 cows, which would correspond to a requirement of more than 3500 additional ha in accordance with the present stocking rate, which is an increase of 30%. This calculation is theoretical when one thinks that some of the farms can still increase their livestock with the existing areas of forage. However, it demonstrates the fact that these objectives cannot be achieved without preparing new land. An alternative can be the development of livestock farms according to almost off-soil models, a scenario that SicaRevia like SicaLait exclude out of hand.

At the same time the sugar cane industry also demands an increase for their surfaces of plantation in order to obtain an area for them of 30,000 ha (Martignac and Pariente, 2002) to continue the industry and find a financial balance for the two factories in activity. If a part of the missing 4000 ha is explored by land reclamation in the lowlands and the extension of the irrigated areas, the sector clearly shows a wish to extend into the highlands. In opposition to this, the production of hay for sale has grown in the lowlands irrigated areas to the detriment of the sugarcane areas.

The expansion objectives of the three principal utilitarian sectors of land therefore don't appear to be compatible, without doubt in an island where there is a tendency to reduce agricultural land as a result of a particularly strong urban pressure in the lowlands, in addition to land speculation, together detrimental to agricultural development. In addition the clearing of new ground in the natural and forestry areas is no longer at issue. The current setting up of a national park confirms the local wishes for environmental conservation. If the public activities are restricted in the central area of the intruding park, the livestock farmers are expressing great anxiety concerning the arrangement of a peripheral area, which will essentially cover their areas of farming.

The doubts brought on by the possibility of adaptation for the farms to conform to environmental standards compelling, for example, the livestock farmers to reduce the use of inputs and

stocking rate thus threatening the farms profitability. The farming sectors in Reunion wonder if the pertinence of the European standards should be applied while the situation here is different.

The competition and compatibilities between the sectors

Nowadays, everybody agrees that the pressure on land demand is linked to urban and agricultural development plus conservation of nature, so much so the global development of Reunion Island requires a complimentary transversal approach instead of the current sectoral one. The main issue for " a balanced development of the region" depends on negotiation and arbitration between the various users in the area. As far as the agriculture-livestock is concerned, the register is to give more importance to complementarities between each of the different land speculations.

The first example of complementarity is connected to the suckler sector. The separation of the breeding and fattening sectors permits, on one hand, to reduce the demand on the pastureland in the highlands, and offers, on the other hand, a supplementary income for the sugar cane farms. This supplement whilst benefiting the farmers in the lowlands nevertheless conflicts with the sugar cane production. Thus, on the irrigated land the fodder areas represent approximately 250 ha and it can be estimated that a specialization –unforeseen – of existing cattle farmers will lead to double these areas (Saque *et al*, 2002).

The major project which the cattle farming and sugar cane industries must establish for their mutual benefit is related to the material transfers between the highlands and the lowlands.

SicaLait who needs forage to increase the production sign contracts with sugar cane farmers to stock upon sugar cane straw. But this production is limited by the mechanized surface. A more ambitious project of recuperation of sugar cane straw in the weighbridges is in course of being negotiated with the sugar cane industry. Weighbridges are platforms where the sugarcane is weighed before transporting to the factories. A lot of straw still remains on the canes, which is possible to recover with a mechanical treatment. This will permit a multiplication factor of 3 to 4 of the material available, which is actually 5000 tonnes for the two cattle farming sectors. The additional effect for the sugar cane sector will be to slow down the development of hay meadows on the area.

In the same evolution, the largest availability of the straw gives rise to the possibility to increase the usage of straw bedding which will allow for an improvement of the effluent composition from cattle farming, with a possible direction towards the production of compost (under trial at the farm of SicaLait). The effluents, which are handled at present into the farm enterprises can be incorporated into a more collective management incorporating the sugar cane farms and market gardens, situated in the lowlands or between the dairy and suckler farms for pasture fertilisation with these "green manures". This crossover of materials between the highlands and lowlands must be how to arrive at a better use of local resources. The long awaited target is to reduce the use of chemical fertilizers and lead to a better distribution of organic material consisting with the environmental standards laid down. This will be better than a continuation of the actual practices, which could be contrary to the development of the cattle farming activity.

What Research subjects?

The construction of a more global approach for the development in Reunion Island requires creating the terms for an inter-sectorial discussion. The conditions for the organisation of these debates between the various local development actors depend on the actors themselves. This discussion initiated in the framework of the realization of the "Schémas de Cohérence Territoriale" (Territorial coherence outlines) and the future "Schéma d'Aménagement Régional" (Regional management plan) prefigures these new terms of coordination. The objective, here, is the census of agricultural lands for reclamation and determination of their potential.

One of the research roles must be to contribute to the local knowledge enabling and nurturing the debates. The cattle farming Centre (CIRAD) is working on "Decision Support Tools" to provide representations of the cattle farming systems and evolution scenarios based on simulation models. An early work looked at the identification of cattle farming systems and the development of dairy farming models (Alary *et al*, 2001; Louhichi *et al*, 2002). This work will be followed by a drafting of a regional model, which represents the territorial organisation of the dairy farm sector and its

interactions with the other sectors of activity, in consideration of the product and service exchanges between the lowlands and the highlands.

The second major contribution from the research Centre is to supply technical references. That's how many works on the forage resources have already been carried out. Leading to the setting up of a pasture management program in close partnership with the "Union des Associations Foncières Pastorales" (UAFP)[1] (Blanfort, 1998; Grimaud and Thomas, 2002). This work, which responds to the requirement to improve the efficiency of the use of forage resources by the livestock farmers, must now be part of the new problematic framework that we have outlined. The management of the meadows and pastures must, from now, be thought about in the perspective of optimizing the use of inputs and cattle effluents and be able to propose agri-environmental standards adapted to the situation of Reunion island. For that, a first step of calculation of some environmental indicators (efficiency and balance of nitrogen) has been implemented in a sample of dairy farm producers (Gousseff *et al*, 2002).

Finally, on a long term plan, the Research Centre must participate in the development of quality criterion for the farming practices and products that help to promote the local production in the context of preservation of biodiversity and local heritage.

These different research operations have resulted in a close partnership with the professional organisations (SicaLait, SicaRevia, UAFP) that are fully committed to their conception and monitoring.

Conclusion

Over the last 3 decades, the creation of cattle farms has contributed to the occupation of the interior of the island menaced by rural depopulation. As a result, these sectors have provided employment and increased the independence of the island for food.

The development objectives of these sectors are completely shared by public finance, especially from the Region. Today the success of these farming sectors is such as the land, which it contributes to the development, become less and less available. This phenomenon is added to by the demography and increase in the living standards.

The direction for public aid (which locally is centred to the installation of a national park where on National and European scales there are more and more bound by environmental criterion) indicates that the new priorities centre on tourism and conservation of nature. In this context, the farmers feel that today their livelihood is under threat.

The questions that we ask ourselves, as operators of Research and Development, are linked to the Farming systems to promote, which permit an increase in productivity for the farmers and can improve the productive independency of the island, the employment and the protection of environmental resources.

Our hypothesis is that to look for sustainable cattle farming systems consistent with the objectives of developing the land cannot be carried by certain sectors alone but must be held in consultation and close partnership between the researchers and the different agricultural actors, in addition to the non agricultural actors linked to this territory.

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[1] The UAFP (Union of the pastoral associations) is in charge of all the actions related with the land reclamation and improvement (pasture establishment, equipments, technical advice…)

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