

Finally, the authors conclude with the need of designing new conceptual and methodological frameworks in order to address the tradeoffs between farms, sectors and territorial outputs and assessments. Such a requirement is made even more urgent when looking at time and considering flexibility and resilience in a changing context as key elements of sustainability.

doi:10.1017/S2040470010001081

Representations of breeders about local breeds in the livestock farming system of the French West Indies: between rejection and appropriation of Creole goat

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Introduction

The institutionalisation of sustainable development is a turning point in the evolution of public policies. The latter are marked by major new aspects such as, the acknowledgement of a regional local scale, necessary for the implementation of decision-making and public action, within the framework of a harmonious development in which the citizen plays an active part. The valorisation of local resources is also part of that new scheme, for it takes into account, the perspective of environmental as well as economic and social aims. The promotion of sustainable agriculture, as well as that of local breeds (LB), is encouraged, within that framework. Such a plan is in accordance with actions for the preservation of biodiversity at international scales, (FAO, DAD). Such is also the case in the French West Indies. The latter areas, now under urban influence, lead us to reconsider the importance and the role of a sector, historically dominant but now threatened. As an example, the accumulation of scientific knowledge about the Creole goats of the FWI tends to demonstrate their positive points and advantages in the livestock farming system (LFS, Alexandre *et al.*, 2009). They are adapted to the physical environment of isolated tropical areas and are known to be more adapted to climate conditions, pasture resources, and diseases. From a scientific point of view, the Creole goats are in a better position to contribute to the sustainability of the local LFS: when husbandry conditions are based on low externalities their performances reach adequate levels. In spite of the advantages recognized in this Creole breed, the practices of the breeders in the FWI (uncontrolled introduction of exotic genotypes), do not allow its potential development (Alexandre and Angeon, 2010) and sometimes lead to its rejection.

What are the representations of the breeders in the French West Indies about the LB? Several works develop the idea that the norms and values within a system preside over action (Argyris and Schön, 1996) and that all changes in practices relate to the evolution of references.

Conditions of rejection and appropriation

The object of this text is to come to an understanding of the sequence composed of – representations, appropriation, and practices – within the context of animal farming system in the FWI. In those societies, human values are taken into account, for they interact with productive patterns. This study allows analysis of the level of representation of agents and to make explicit the mechanisms and processes subsequent to their evolution. The hypothesis that was first established in a previous work (Alexandre and Angeon, 2010) is demonstrated throughout this text. It stipulates that the dynamics of those representations are all the more plausible as it lies within a collective framework, which facilitates the appropriation and the learning of new practices. As such the work tends to determine the factors of emergence of those collective frameworks in the FWI.

In the present study the following causes, leading to the rejection of local breeds in the FWI context, have been identified in terms of human values. First and foremost, we may consider, as it has been said by Bernabé *et al.* (1989), that societies have an external and exotic view of themselves. Therefore, they are likely to develop a strong repulsion against their own practices and patrimony (traditional LFS and local breeds), once the latter have been made formal by the researcher, when an official economy is developed. Second, the French West Indian Man acts according to long decayed economic patterns- the plantation system. Trapped in this old-fashioned pattern (Crusol, 2007), man may unconsciously show strong resistance against an internally oriented system of production. Last but not least, the term “Creole”, which enjoys high reputation for its identity, is also equivalent of a “compromise”, with a difficult Past and therefore is not successful when linked to production.

Conclusion

These three factors, fundamental constituents of contemporary French West Indian societies, may be helpful to understand the rejection/appropriation dialog faced over local breeds. In order to implement adapted LFS, the authors recommend actions aiming at decision makers, researchers, teachers and extension officers likely to induce a sequence composed of – representations, appropriation, and practices.

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doi:10.1017/S2040470010001093

The farmer's viewpoint: Payment for ecosystem services and agroecologic pasture based dairy production

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Introduction

Ecosystems provide a variety of services essential to human survival and well-being. For example, forests provide food and fiber, regulate climate and water, generate cultural benefits such as recreation, and create habitat for biodiversity. All economic production requires both energy and raw materials provided by nature, and unavoidably produces high entropy waste. Most raw material inputs into economic production otherwise serve as the structural building blocks of ecosystems. When economic activities remove ecosystem structure and return waste, the result is a loss of function, including ecosystem services. Perhaps the most important problem our society currently faces is how to allocate ecosystem structure between conversion to economic production and conservation to provide ecosystem services, both of which are essential to our well-being (Farley, 2010). Different agriculture systems provide distinct conditions for the flow of ecosystems services. Farmers are required to produce food on an increasingly degraded environment for an ever growing population. Markets compensate for goods from the provisioning functions (food, raw materials, ornamental). Provisioning functions are tangible and can be tradable, such as the case of dairy products. On the other hand, the market does not account for the value from regulating functions such as water, forest, habitat and biodiversity protection among others (Alves, 2010). When best management practices are adopted livestock management, especially dairy farming has the potential to promote ecosystem services such as water supply and regulation, soil formation, biodiversity, carbon sequestration, food provision, as well as supporting rural livelihoods (Meurer *et al.*, 2009). The aim of this study is to assess farmers' perception about the flow of Ecosystems Services (Farley, 2010) associated to the transition from confined dairy production to pasture based dairy system called management intensive grazing – MIG (Meurer *et al.*, 2009).

Material and Methods

The geographic area of this research is a typical dairy region in the subtropical coast of Santa Catarina State, Brazil. In Southern Brazil the dairy industry consists mostly of small farms, which constitute a major component of the economies of most municipalities. The dairy activity is very important to the economy of Santa Catarina. It is an element of local culture and it promotes a monthly income to family farms (Freitas, 2009). Eleven percent (110 farms) of the pasture based dairy farmers from four Dairy Industries (*Darolt Co., Della Vitta Dairy, Doern Dairy and Generation*) were randomly sampled and surveyed. Data collection was performed through structured interviews (Rizzoli and Schmitt, 2007) from April to June of 2009. Interviewed farmers were responsible for the farm activities. Spontaneous answers were recorded and then categorized. Uni-variate and bi-variate tools were used to analyze the results. The software used for the analysis was BrOffice Calc.

Results and Discussion

The survey showed that 24% of the farmers used herbicide in the entire area. For 84% of farmers, the ground was well covered when managed under MIG. For 82% of the interviewees, the soil was more resistant to drought and showed higher organic matter content. The silage represented the main source of feed in all farms before the transition to pasture. Currently, silage is the main feed in 16% of the farms surveyed. According to farmers, after implementing grazing there was no need to treat for the tick incidence anymore on 77% of the farms. Before the transition to management intensive grazing tick incidence was treatments were undertaken every 3 months in all herds. Chronic mastitis was also a widespread health problem in all farms. After the transition it is still a serious health problem in 28% of the farms surveyed. Forty four percent of the farms maintain riparian areas on their properties although these are narrower than required by the Forest

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