

Building decision tools for sustainable grassland management: a case study of participatory research in La Réunion

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Introduction During the last 30 years, cattle breeding has developed in La Reunion Island (France, Indian Ocean) with strong support from local authorities and extension structures. The Union des Associations Foncières Pastorales (UAFP) initiated and still sustain a large effort on grassland improvement. During the same period, CIRAD managed different research programmes on agronomic aspects of pasture management). Scarcity of space, the volcanic soil and tropical climatic conditions contributed to repeated forage shortages during the dry season, making forage production a major issue for cattle breeders. In 1991, CIRAD launched a research programme to elaborate decision tools for assessing and improving pasture management. A partnership was developed with UAFP, with the local institution being involved in the elaboration of the tools and now being completely in charge of their use to advise cattle breeders on pasture management.

Material and methods A joint workshop (INRA, CIRAD, national and overseas French Agricultural Research Institutions) on decision support tools gave the opportunity to study this particular programme as a completed R&D innovation process, from its start until the transfer of the tools to extension. The aim was to provide an *ex post* evaluation of the innovation process with a sociologically orientated approach, in order to improve management of research programmes with professional partnerships and the ways to produce operational tools.

Results A chronological review of the process enabled identification of the main stages of the innovation process. A grassland ecology PhD candidate started the programme. Regular exchanges between scientists, breeders and professionals partners and the local research funding authorities enabled the research team to identify the needs of the breeders and technical advisors and pointed out a problem in grazing management and fertilisation. In contrast, the first plan for the research programme had focused on floristic aspects of pasture management. As a result, decision tools using sward height for rotational grazing management and use of soil and plant mineral nutrient levels for fertilisation advice were chosen and adapted to the local situation. This stage involved experimentation on six farms that were partners of the research team for other actions. Technical advisers, who were already following these farms, were involved in every intervention made by the research team. Judging by the first results, and successful enlargement of technical advice for fertilisation and rotational grazing to others farms, the tools proved to be successful. Transferring the tools to UAFP occurred naturally after a five-year research period. The tools have so far been used for advice on more than 100 farms and have given significant results in improving grassland management and reducing forage shortage during the dry season.

The study of this programme also enabled interesting conclusions to be drawn about managing a participative innovation process. In this case the transfer of the tools to the professional structure (UAFP) was all the easier because it occurred simultaneously with the transfer to UAFP of the main technician who was a former trainee working in the CIRAD research programme. His hiring by UAFP was agreed by both structures at the time of the transfer. In the first stages mainly scientists of CIRAD were involved, then quickly, their importance decreased and technicians became more and more important. There was a concentration of knowledge and advice about pasture in only one technician of UAFP, despite many farmers were, and are still, demanding advice. This ensured consistent and efficient advice, because this person had obtained ten years experience, but it raises the issue of technical support on pasture management in the future. To improve the dissemination of information, UAFP has just published a compendium of technical notes (Barbet-Massin *et al.*, 2004) which summarises all the scientific and practical knowledge of CIRAD and UAFP about grasslands on the island.

We also focused on several other functions of the decision tools. The elaboration process enables people to define more precisely their demand for information, so that the tools represent a medium for dialogue and exchanges between the adviser, the scientists and the farmer and implicitly promote self questioning by the farmers and changes of their opinion about pastures. Lastly, the use of tools adds to the power of the adviser and may enable him to better assess the quality of farmers' practices. Further conclusions are still in development about ways to manage innovation processes and to build decision tools in order to improve research efficiency and the implementation of results.

Reference

Barbet-Massin, V., P. Grimaud, A. Michon. & P. Thomas (2004). Guide Technique pour la Création, la Gestion et la Valorisation des Prairies à La Réunion. UAFP. CIRAD-Pôle Elevage.