

# **FARMING AND RURAL SYSTEMS RESEARCH: A CONSTELLATION OF SYSTEMIC AND INTERDISCIPLINARY PERSPECTIVES**

*Artur Cristóvão, Professor of Rural Development*

*Department of Economics, Sociology and Management and Centre for Transdisciplinary Development  
Studies, University of Trás-os-Montes & Alto Douro, Vila Real, Portugal*

acristov@utad.pt

## **Challenging conventional and linear models**

Farming Systems Research (FSR) represents a particular set of views for agricultural and rural development research and practice, which contrasts with the conventional and linear models of knowledge production and technology or innovation transfer (Roling, 1994). These views are not new and were built with multiple contributions coming from different contexts, scientific disciplines and experiences, frequently with distinct assumptions, theoretical basis and methodologies. Historically, we can consider two major lines of development, the Francophone and the Anglophone, with different roots and paths.

In the Francophone case, the origins are the work developed in the 60's by tropical geographers and neo-Marxist ethnologists, the first emphasizing the study of local territories and forms of organizing production, and the latter underlining the importance of analysing power relations and conflicts, the relationships between exchanges and distribution, and the issues of dependency and social redistribution (Pillot, 1993: 22).

Such work influenced economists, sociologists and agronomists, and originated the formulation of the approach known as "Recherche-développement de systèmes agraires", applied in the tropical and French contexts. Important contributions were given by authors such as Capillon and Sebillote (1980), Sebillote (1974, 1978), Brossier and Petit (1977) and Brossier et al. (1993), among many others, all working in the frame of the Institut national de la recherche agronomique (Inra), especially through the unit Systèmes agraires et développement (SAD).

In the Anglophone case, the roots can be located in international research centres as Cimimty, Icta, Iita, Icarda or Irri. In these centres, which performed an important role in the so-called Green Revolution, researchers from different countries started questioning the socio-economic impacts of the proposed technologies, as well as its degree of pertinence considering the multiple failures, particularly in more sensitive agro-ecological areas (Pillot, 1993: 24-25). Norman (1980), for instance, mentioned the growing energy costs associated to the Green Revolution technologies, and the recognition that many traditional farm practices were viable (in economic, social and environmental terms) and should be preserved. Such questioning opened the way to the formulation of the approach known as "Farming Systems Research", to which contributed authors like Ruthenberg (1971), Harwood (1979) or Norman (1980), among others.

Pillot (1993, 25) underlined that in the Francophone origins the importance of human sciences was critical and the Humanist and Marxist influences were very visible, while in the Anglophone one the influence of neo-classic economics and agronomic sciences was crucial, as well as the operational and pragmatic implementation concerns. Today, it is clear that farming and rural systems research represents a constellation of systemic and interdisciplinary perspectives, as exemplified by the work of the Association of Farming Systems Research and Extension (AFSRE) which became later the International Farming Systems Association (IFSA).

## **Growing and changing the focus**

Farming Systems Research expanded enormously in the 80's. As pointed out by the FAO (1994, 13), in the mid 80's, there were about 250 medium and long-term projects, all over the world, with a FSR perspective. The FSR principles of farmer-centred, systemic, participatory, place-based and interdisciplinary research and action are currently applied in all continents, by different types of institutions, including research stations and institutes, universities, extensions organizations and NGOs.

Today, the focus of attention in FSR has been changing and new research issues emerging. The web page of IFSA – Europe presents an excellent summary of the core changes observed, pointing out to the following shifts (<http://ifsa.boku.ac.at/cms/>):

- from crops, livestock, crop-livestock interactions and agroforestry to broad set of activities, such as energy production, direct marketing, agri-tourism, or health care;
- from the farm per se to a hierarchy of systems, within which the farm is one of the many levels (crops, communities, regions, landscapes, markets, etc.), implying complex interactions and multi-scale approaches;
- from farmer focus to multi-stakeholders, providing attention to gender issues, conflict management and negotiation;
- from sectoral to territorial approaches, giving more importance to off-farm employment and to the “rural systems” as a whole;
- from system productivity to a broader concern with sustainability, and, more importantly, the change dynamics (farmer's goals and preferences, institutions, policies, markets, etc.);
- from extension of the best innovation to active (and permanent) learning and co-construction of innovations.

## **Opportunities for involvement and collective reflection**

Researchers, extensions agents and rural development workers valuing systems thinking and systems approaches to agricultural and rural development founded in 1989 the AFSRE that later created regional bodies in most continents, including the European one, launched in 1992. In 1998, AFSRE gave place to IFSA. These professional and scientific associations have organized many fruitful meetings, contributing quite actively to the development of Farming Systems Research worldwide (<http://ifsa.boku.ac.at/cms/>).

Two major and historical scientific events gathered hundreds of FSR researchers and practitioners and played important roles in the consolidation of this perspectives and the creation of a diverse and broad community: the First European Convention on Farming Systems Research and Extension, Edinburgh, 1993 (Dent and McGregor, 1994); and the International Symposium on Systems-Oriented Research in Agriculture and Rural Development, Montpellier, 1994 (Sebillote, 1994).

As referred by Jiggins (1994, xii), “The First European Convention marked the first attempt to bring Europeans who have been applying systems approaches to the problems of Third World agriculture together with those applying systems approaches within Europe”. This Convention was held just after the “shift in emphasis of the European Union agricultural policy from production to the restriction of surpluses, and increasing emphasis on environmental and social protection” (Dent and McGregor, 1994: xvii). It was a time of intense debate around the farmer-first paradigm, the involvement of user groups, and the work with NGOs.

The IFSA European Group has since that time organized regular major meetings every two years, all with published and available proceedings (<http://ifsa.boku.ac.at/cms/>):

- 1996, Granada, Spain, “Technical and social systems approaches for sustainable rural development”;
- 1998, Hohenheim, Germany, “Rural and farming systems analyses. Environmental perspectives”;
- 2000, Volos, Greece, “European farming and rural systems research and extension into the next millennium: environmental, agricultural and socio-economic issues”;
- 2002, Florence, Italy, “Farming and rural systems research and extension. Local identities and globalisation”;
- 2004, Vila Real, Portugal, “European farming and society in search of a new social contract. Learning to manage change”;
- 2006, Wageningen, The Netherlands, “Changing European farming system for a better future: new visions for rural areas”;
- 2008, Clermont-Ferrand, France, “Empowerment of the rural actors: a renewal of farming systems perspective”.

These meetings were open spaces of interdisciplinary debate and sharing, featuring the exploration of major policy, research and development issues, and favouring small group exchanges around specific themes. They have contributed to the consolidation of a community of farming and rural systems researchers, development agents and other concerned actors. As Dedieu and Zasser Bedoya (2008, 3) stressed: “[It] is a free, dynamic and inventive group, open to multidisciplinary, participative approaches, the change in farm-territory scale and science and society, research and development questions”.

In this period of almost 15 years, many things changed in European agriculture and the rural development context. It is particularly important to stress the growing complexity of both problems and solutions, given the trend and/or pressure to diversify the rural economies, to articulate activities (at farm and various spatial levels), to use and manage local resources adequately, to improve food quality and security, to innovate in different domains, to control technologies’ use and impact, and to involve a plurality of stakeholders.

The main topic of each symposium, as well as the themes selected to discuss in the different workshops, tend to reflect these changes and the underlying challenges. Together, the eight symposiums represent more than 40 workshops and several hundred papers and posters. Learning, training and extension systems have been permanent topics of debate (10 workshops); the integration of environmental issues in FSR, natural resources management and landscape construction have grown in importance in the last few years (6 workshops); food systems/chains, markets and food quality emerged as important matters in 2002 (4 workshops); the resilience and sustainability of small-scale farming have been addressed in different years (3 workshops); the conceptual issues and systems methodologies are a permanent focus of interest in most workshops; greenhouse gas emissions and energy products was a workshop theme for the first time in the last symposium.

### **Clermont-Ferrand 2008: Empowerment of the rural actors**

The 2008 symposium, held in Clermont-Ferrand , involved about 150 participants from many countries, mostly Europeans, representing a broad ranges of disciplines and institutional affiliations. The symposium title – “Empowerment of the rural actors: a renewal of farming systems perspective” – , translates the concern with the evolution of rural territories and the development of new concepts, methodologies and tools to renew research and practice.

The programme included six thematic workshops: (1) Learning, collective action and empowerment; (2) Vertical integration – Farming systems in food chains; (3) Adaptive farming systems; (4) Landscape as a frame for and product of development in rural areas; (5) GHF emission reduction and energy production; and (6) Change in knowledge systems and extension services. A total of 103 papers and posters were presented and debated in the various sessions, and additional presentations were made in the plenary meetings and satellite events.

In contrast with so many other scientific meetings, the workshop sessions were designed and conducted in order to maximize the participants' opportunities to share experiences and theoretical perspectives, and contribute to the construction of new ideas and knowledge. Given the wide spectrum of topics covered and the richness of the debate, it is difficult to summarize the conclusions. The Clermont-Ferrand IFSA symposium exhibited a more mature farming and rural systems community. Advances were made in the definition of a body of knowledge; new areas of reflection were opened and issues for future work identified. The full set of papers is available for consultation and dissemination (<http://s149289260.onlinehome.fr/ifsa-artiphp/welcome/index.php>).

Vienna 2010: The added value of systems approaches in times of change and uncertainty

The next European IFSA symposium, to be held in Vienna in July 2010, under the title “Building sustainable futures – The added value of systems approaches in times of change and uncertainty”, will be organised by the Department of Sustainable Agricultural Systems of the University of Natural Resources and Applied Life Sciences (BOKU University). As underlined in the background statement (<http://ifsa.boku.ac.at/cms/>):

“The events in the second half of the year 2008 (financial and economic crisis) have shown that systems we once thought behaved in a linear and predictable manner, are in fact characterized by non-linearity, uncertainty, and prone to dramatic changes. Farmers and other stakeholders in rural areas need to develop the capacity to cope with, adapt to and transform these dynamics. Although there is much talk of systemic approaches, their applications to farming and rural settings are still in their infancy. Indeed, the feedback loops in family farming systems and the dynamics of rural networks are still poorly understood.”

The Vienna Symposium will address five major key themes: (1) Knowledge systems, learning and collective action; (2) Transition, resilience and adaptive management; (3) Energy production, CO<sub>2</sub> sink and climate change; (4) Sustainable food systems; and (5) Landscape and rural land use. Each one of these themes will be object of debate in several workshops, each focusing on a more specific issue. In the first theme case, for instance, the nine expected workshops will consider issues like innovation and change facilitation, innovation across the domains of agriculture and social care, reaching the hard-to-reach stakeholders, systems approaches and co-innovation, learning from and with local experts or distance learning in rural areas.

As in the previous eight symposia, a variety of participants are expected in Vienna: “Farmers, advisors and other practitioners are invited to present field notes or case studies. Students are encouraged to present research questions, research designs or results. Researchers are welcome to discuss theoretical and methodological issues or to present case studies” (<http://ifsa.boku.ac.at/cms/>). Besides, contributions are invited from all geographical areas and the fields of research work are not limited to Europe. You are invited to participate and contribute!

## References

- Brossier, J., Petit, M., 1977. Pour une typologie des exploitations agricoles fondée sur les projets et les situations des agriculteurs, *Économie rurale*, 122, 31-40.
- Brossier, J., de Bonneval, L., Landais, E., 1993. *Systems Studies in Agriculture and Rural Development*, Paris, Inra.

- Capillon, A., Sebillotte, M., 1980. Étude des systèmes de production des exploitations agricoles : une typologie, in *Actes du séminaire inter-Caraïbes sur les systèmes de production agricole, Méthodologies de Recherche*, Paris, Inra, 2-3.
- Dedieu, B., Zasser-Bedoya, S., 2008. *Proceedings of the 8th European IFSA Symposium, Empowerment of the Rural Actors: A Renewal of Farming Systems Perspectives*, 6-10 July, CD Rom.
- Dent, J.B., McGregor, M.J. (Eds), 1994. *Rural and Farming Systems Analysis: European Perspectives*, Wallingford, CAB International.
- FAO (1994). *Farming Systems Development: A Participatory Approach to Helping Small-Scale Farmers*, Rome, FAO.
- Harwood, R.R., 1979. *Small Farm Development: Understanding and Improving Farming Systems in the Tropics*, Boulder, Westview Press.
- Jiggins, J., 1994. Forward, in Dent, J.B., McGregor, M.J. (Eds), *Rural and Farming Systems Analysis: European Perspectives*, Wallingford, CAB International, xiii-xvi.
- Norman, D., 1980. *The farmings systems approach: relevancy for the small farmer*, MSU Rural Development Paper, 5.
- Pillot, D., 1993. Se con quien estoy endesacuerdo pero sigo buscando a quien este de acuerdo conmigo: reflexiones sobre la diversidad de los estudios sistemicos del medio rural, in Garza, H.N., Colin, J.P., Milleville, P. (Eds), *Sistemas de Producción y Desarrollo Agrícola*, Montecillo, Edo. México y Orstom, 21-35.
- Roling, N., 1994. Agricultural knowledge and information systems, in Blackburn, D. (Ed.), *Extension Handbook: Processes and Practices*, Toronto, Thompson Educational Publ, 56-67.
- Ruthenberg, H., 1971. *Farming Systems in the Tropics*, Oxford, Clarendon Press.
- Sebillotte, M., 1974. Agronomie et agriculture : essai des définitions des tâches des agronomes, *Cahiers Orstom série biologie*, 24, 3-25.
- Sebillotte, M., 1978. Itinéraire technique et évolution de la pensée agronomique, *C.R. de l'Académie d'agriculture*, 64, 906-914.
- Sebillotte, M. (Ed.), 1994. *Actes du symposium international recherches-système en agriculture et développement rural*, Montpellier, Cirad-Sar.