

# Facing the organic reality : the diversity of development models and their consequences on research policies

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**Abstract** - While OF&F specificity or diversity are acknowledged in many studies, the process of selecting development models is still a pending issue. Based on literature review and our experience, we propose a comprehensive description of such models. Two main axes determine four models. The first axis refers to governance patterns, whether individual or collective. The second one opposes means-based OF to system redesign. Four models are then described, and potential transitions among them are discussed. The role and nature of public policies likely to support candidate models is finally examined. On this basis, this paper intends to openly lay down the stakes of a public research policy for OF&F. As the current policies generally consider implicitly OF&F as an homogeneous entity, the authors emphasize it's the diversity and show how the research agendas are strongly connected to the development models for OF&F.<sup>1</sup>

## INTRODUCTION

Most publications on OF&F implicitly present it as relatively homogeneous or unique. For example performances of OF&F, the technical bottlenecks, consumption or supply chains issues are studied and discussed. However, when we have to analyse the development of OF&F and the means to promote it (regulations, research, public policies) directly crops up the question to know the development pattern we are discussing and what the selection of a specific pattern entails?

Diversity can be identified within the frame of production systems and marketing channels. This diversity leads to a debate on the organic farming's future, considering that development models also reveal various evolution paths.

By following the economic theory of conventions (Thévenot, 2001), it is possible to identify an evolution of the OF&F from an interpersonal convention (designed and organised with regards to interpersonal relationships between the actors) to a market-led and industrial one (organised according to the classical market rules and technical standards) (Sylvander, 1997). This is consistent with the "conventionalisation" theory and debates initiated in social sciences (Buck et al., 1997), whereby the growth of organic agriculture would make it similar - in its organisation and operation- to the mainstream food sector it was established in opposition to.

Yet, according to the models which are developing in the reality and/or the public goals, it will be possible to infer very different types of public policies.

Presently, this debate doesn't take place because decision makers seem to refer to idealistic or implicit OF&F definitions and models. In this case, decisions are liable to be taken on the basis of untransparent power relationships and underground compromises.

In fact, most European countries have national research programmes on OF&F, based upon open calls and research networks, consisting of teams from universities and research institutes (Kristenssen, 2006). When establishing the programmes and assessing the projects, OF&F is assumed to be quite homogenous and unique. Many publications on OF&F implicitly present also this mode of production and processing on this way. We can refer, for example, to the discussions on the performances of OF&F, the technical locks out, the regulations, the consumption or the supply chains issues. However, when we have to analyse the means to promote OF&F (and among them : research), directly crops up the question to know the type of development we are discussing.

The aim of this paper is to contribute to draw baselines and challenges for OF&F's strategic development and, subsequently, the stakes of research policy, by giving an account of the diversity of OF&F, not *per se*, but according to the aim presented above.

We first suggest two main theoretical and comprehensive variables, supposed to explain the main stakes of the OF&F's development. Then we show up, on that basis, four models of development, which must be considered as "polar" ideotypes. Finally, we draw consequences on the diverse research agendas, which are linked with the models.

## ACCOUNTING FOR THE OF&F'S DIVERSITY

There certainly are many variables which could be relevant to account for this diversity. However, based on the literature mentioned above and our experience, we can identify two comprehensive axes : management and governance on one hand, consistency and development of the socio-technical design on the other hand. These variables can be implemented on farms as well as on processing or even marketing firms.

1. The **first axis** is characterised by *management and governance*, already identified in previous economic works, especially in the OMIARD project (Sylvander & Kristenssen, 2004). This axis discriminates two polarities,

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- *Corporate or individual governance* : initiatives are based on a single actor's logic and strategic autonomy (for production, as well as processing and marketing), even on small producers' groups, where each member keeps a certain part of autonomy, selling often directly to private customers on a local scale. Medium supply chains, dominated by a single "channel captain", can be sorted out in this category. The products are generally less processed.
- *Sectorial or territorial governance* : it consists of several enterprises (in the production and/or processing stage), committed in a collective action (cooperatives and networks as well), with collective management devices ("hybrid forms" including formal contracts), on a supply chain basis or territorial basis. These types of enterprises market processed products, on regional or national-international scale.

2. The **second axis** represents the *degree of achievement of a socio-technical concept for OF&F*. With respect to methods used in OF, we also can distinguish two "polarities":

- *Basic compliance with OF standards* (regional, national or EU). When based upon negative or positive lists of inputs or practices, OF interpretation can be close to input substitution or/and reduction of external inputs. As a result, biological assets can be used in a classical frame of reference, which protects and perpetuates the structures and processes that are the sources of the problems that we are endeavouring to solve (Lampkin, 1992). Hence, the difference between OF and integrated production is not clearcut!
- *System redesign*, which was particularly developed for conceptualising pest control in entities conceived as agroecosystems, *e.g.* to favour the crops and natural controls and not the pests (Hill, 2005). Such a redesign would also enhance interactions between techniques (through crop management), between crops (crop sequences and land use patterns) and with natural regulation processes. Definition of the systems involved and our relationships with them differ accordingly.

The two approaches also entail differences in terms of : conversion paths and potential change in OF (adaptation to existing regulations seen from the annexes *versus* potential innovations suggested by "whereas organic production methods..." upstream the adoption of the 2092/91 EU regulation), as well as time spans considered (short term adjustment) of means *versus* progressive design of a system), roles of certification (Sylvander, 1997) and extension in contributing to one direction or another one.

#### TOWARDS A THEORETICAL TYPOLOGY OF THE OF&F'S DEVELOPMENT MODELS

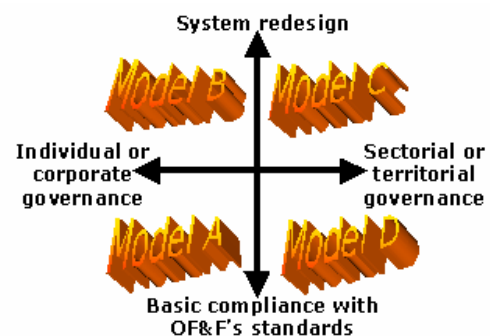
Through implementing this two axis approach, we define four theoretical models, which account for the empirical diversity on a way which allows for better understanding the main stakes in OF&F's and consequently clarifying a debate about the public policies.

*Model A* : consists of farmers, who entered in the OF&F for opportunistic reasons and who are solving technical problems through input substitution, implementing individual management or in networks which may be strongly dominated by a channel captain. Quite often farms non specialised in OF. It also consists of single processing firms.

*Model B* : consists of experienced and skilled farmers, specialised in OF, with a high level of education, implementing direct marketing or having non contractual relationships with small processing firms or supermarkets, small and medium specialised enterprises, which also belong to this model.

*Model C* : same kind of farmers as previously, committed in specialised cooperatives or medium sized firms, with contractual agreements in supply chains or in territorial networks, processing and marketing regionally or nationally, with differentiated partnership with supermarkets.

*Model D* : same kind of farmers as in model A, integrated in downstream non specialised firms, entered on the OF market for a low part of the turnover, selling exclusively to wholesalers, large processors and/or supermarkets.



We introduced four models likely to represent ideotypes or poles. Indeed, any classification reduces the reality in too simple terms, and several intermediate situations may occur. Such situations are manifold, and likely to represent a huge potential for OF development. They can be characterised in terms of distance to one or several poles and not in terms of fixed categories; further research can make the picture more complete.

This opens questions on possible transitions (or breaking points) among poles, and about the nature of research and development programs relevant to specific paths. Time dimension is also crucial to relate design with diversification issues, namely during a conversion process. However, obtaining a clear picture of the quantitative distribution of the various models in a given region remains problematic (see attempt in Caporal and Costabeber, 2004). This classification is not to be considered as *per se*, but as a tool to conceive the future of public policies. Model A is consistent with a view of OF&F's as a "niche". A shift on the horizontal axis will depend on farmers and market organisation, whereas a vertical shift will depend more on cross-compliance policies. As a matter of fact, operators don't meet the same technical problems either the same economic hindrances. Likewise, we assume that they don't have the same needs in terms of public support (technical assistance, financial support, regulations and research programmes). At present, to make choices in terms of public priorities supposes that these questions has been identified, analysed, debated and settled. This paper may contribute to the debate in those different areas and particularly on that of research.

#### WHICH LINKS BETWEEN THE DEVELOPMENT MODELS AND THE RESEARCH AGENDAS ?

*Example 1 : which kind of research agenda on cereals and bread ?*

In terms of research in wheat genetics, some professionals express concerns about wheat competitive ability against weeds and soil covering features, while others set the priority on the variety's protein rate. About fertilization, some professionals consider that implementing the basic OF's principles (long term crop rotation) should be enough by definition to generate soils balanced in mineral constituents, while others put the priority on an diagnosis tool allowing for a better nitrogen management, in order to control the spring nitrogen fertilisation. Concerning the bread quality, some professionals put the priority on the allergy for gluten, while others consider the urgency to compensate the protein problem by knowing better the amino acid role (glyadine/glutenin balance), better understanding the technical process, improving the milling techniques (stone milling vs cylinder milling) and the baking techniques and by analysing the bakers' know how, in order to control the flour's quality and to have bread with higher loaf volumes. Those divergent concerns are addressed by professionals who may not emphasize the same development models.

Considering the development models recalled above, we make those research stakes much clearer. While the model A put the emphasis on the agronomic aspects of the wheat cultivation, the model B dont put the focus on fertilization problems, neither the genetic ones, but the understanding of the processing conditions. The model C goes for wheat genetic screening to obtain sufficiently high protein and the model D, which has anyway the possibility to select the right varieties on the upstream market, prioritise the diagnosis tools to manage the nitrogen in soils.

*Example 2 :which kind of research agendas on sheep breeding ?*

As regards sheep meat research, the development models are not entirely defined, neither by the European and national regulations, nor by the simple recourse to the principles of the OF.

As a result, research workers would have the latitude to select the option(s) they wish to focus on... The situation is slightly different in the frame of a coordination body like the "GIS Massif Central" (Group of Scientific Interest), where research topics are discussed and selected collectively. The researchers proposed to analyze two systems within a first experimental device (farm "Redon"):

- a Grassland System (GS: not accelerated animal reproduction, with one lambing per year and per ewe, a maximum use of fodder in the feed ration and the minimum physiological stress to animals, to ensure their health) and
- an Intensive System (IS: accelerated reproduction with three lambing over two years, and substantial concentrates in the diet).

In the first one (GS), the emphasis is put on the adaptation to the milieu, searching the coherence between the system components, ensuring a satisfactory level of lamb production, both from technical and economic points of view. It establishes a maximum adequacy between the local resources (large proportion of fodder), the animal requirements and their health. It is a relatively innovative system, with a certain technicality and seeks to comply with OF principles.

The second one (IS) is rather directly similar, through inputs substitution, with his conventional equivalent which ensures, in its context, the best economic results. One can consider that GS belongs to the B model and IS to the A one. The first system

(GS) meets clearly the partners' expectations. Conversely, from the researchers viewpoint, the a priori application of the rules of a systemic approach in the GS did not allow for clearly formulating new assumptions, namely on the control of animal health in such a system.

On the other hand, the IS exacerbated the constraints and put more acute scientific questions, since the critical points are likely to be highlighted and analyzed (for example, exploring relationships between low coverage of food requirements and possible pathological risks or parasitic infestation). A four years experiment showed that IS gives on average lower and more irregular economic results, as compared with GS, especially in a general context of economic difficulties for OF... However, in a more favorable economic situation, IS could find its place within the framework of mixed processing network (D model organic/conventional). The GS, for its part, is more stable, but the conditions of its reproducibility must be studied on a longer term, in particular within the framework of a reinforced links between animal production and both landuse (via the regulation for example) and land care (monitoring the evolution of the organic matter and mineral balances). This reproducibility would certainly be ascertained/evaluated with a C model, where balances can be established in locally organized networks of farming systems.

Lastly, it was proposed to test specific assumptions in an analytical device devoted to compare organic and conventional operations (on the farm "Orcival"), while fixing/controlling some factors to explain some phenomena. Moreover, the comparative approach (in experimental device but also through farm networks) also allows to demonstrate that OF work as a prototype for conventional farming (towards a future D model). In the current state, this comparative approach does not have the favour of the professionals. More generally, the ability to combine in a common framework two sets of elements/ingredients appears as a cornerstone for OF research projects. First, a twofold partnership/cooperation with professionals and among research workers (from various disciplines but in a common environment) enables to address OF&F's challenges. Secondly, the combination of several methods in a unified approach/framework facilitates the exploration of prototypes towards B and C models. For example, designing a organic farms' network could take into account their relative positions, as compared with various models, and hence enable to examine trajectories for change. Likewise, the combination of farm modelling (such as linear programming [ref Veyssset?]) and experimental platforms/sites (with system-based experiments) widens the range of situations that can be explored, namely those which can be found in farms reality.

CONCLUSIONS

In this paper, we stressed that a research policy cannot be considered as a neutral public tool, which woul'nt be depending on the development models to be promoted. Our approach intends to clarify them, to focus on the blind spot of the public policies and to contribute to set up principles for prioritising the goals and the means. Promoting a debate on those issues could help the decision makers to avoid inconsistencies and blind alleys. In the same time, this contribution can be used to better design the methodologies to be implemented and their respective roles in the research programmes (comparative trials, farm networks, analytical vs systemic research devices).

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