

## How to promote innovation and interdisciplinarity in organic food and farming research evaluation

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### Abstract

*The development of organic food and farming research calls for system-oriented, innovative, interdisciplinary approaches. The process of evaluating research proposals is a crucial step towards this objective. Based on the EU CORE Organic pilot call for joint transnational research projects, we analysed to what extent the evaluation criteria and procedures implemented address this issue. Feedback on the experience of the target groups involved in this call was gathered and discussed in relation to findings from the literature. Our results show that interdisciplinary and innovative aspects could be better addressed, and evaluation criteria more clearly defined and delimited. This entails reshaping the main criteria and developing more suitable evaluation categories and sub-criteria. We also suggest creating mechanisms to enable funding of a few "risky" research projects, to facilitate entry of newcomers to the arena, to promote exploratory research projects and to support longitudinal interaction among applicants and assessors.*

### Introduction

As a cornerstone of knowledge production, research evaluation is the subject of considerable debate in the scientific arena. Based on our experience with the CORE Organic project and its associated pilot call for joint transnational research projects, we aim to bring this debate to the forefront of the organic food and farming (OFF) research arena. CORE Organic, an acronym for "Coordination of European Transnational Research in Organic Food and Farming" was initiated as a part of the European ERA-net Scheme, which is intended to step up cooperation among national research activities. One of the objectives of CORE Organic is to enhance the quality, relevance and utilisation of resources in European research in OFF.

Research in organic farming, advocating a holistic approach, is still a relatively new research domain. This calls for strong integration of disciplinary perspectives and for development of specific methodologies to assess new research targets (Rasmussen *et al.*, 2006). Our objective is to assess to what extent the evaluation criteria and procedures used for the CORE Organic pilot call address these issues, particularly their suitability for promoting interdisciplinary and innovative research projects.

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Drawing on feedback of experience from the target groups involved in this call and analysis of the literature, we suggest some pathways to improve research evaluation procedures, arguing that improvement of evaluation procedures would also improve the quality of research in this field.

## **Materials and methods**

In September 2006, eleven EU partners from CORE Organic launched a pilot call for transnational research projects in OFF. The following three thematic areas were chosen: animal health management, quality of organic food and innovative marketing strategies. 38 research proposals involving research consortia of at least three partner countries were submitted for selection. A panel of nine experts was selected for a consensus-building process. Evaluation was implemented with a set of 19 sub-criteria, aggregated into six main criteria.

The scientific expert panel recommended the 17 projects that scored best in the evaluation to the Governing Board of CORE Organic, which then selected 8 projects<sup>4</sup> with the aim of matching the national priorities given by the 11 participating countries, covering the three thematic areas, and involving as many relevant partners as possible.

The survey and assessment of the evaluation procedure consisted of a feedback evaluation exercise involving the different target groups that took part in the pilot call, including the expert panel, the Governing Board members, the national call contact persons and the applicants.

## **Results and discussion**

The pilot call used a combination of classic criteria such as "scientific quality", "choice of methods", "relevance to the call", and more specific ones such as "trans-national linkage", "interdisciplinarity of the consortium" and "innovative research" (Table 1, left column). The experts' survey showed that the proposed set of evaluation criteria fulfilled the expectations of most target groups involved in the CORE Organic pilot call, and that the participants were, on the whole, satisfied with the procedure. However, it emerged from the survey that the criteria used for evaluation should be better defined, and that developing more specific sub-criteria could allow a better balance between "scientific quality and robustness" and "interdisciplinary and innovation" (see Table 1, right column). Furthermore, the current list of sub-criteria already contains three criteria dealing with different aspects of interdisciplinarity. The fact that they are assigned to different main categories may weaken their significance. Meanwhile, some applicants and experts still suggest that major improvements should be undertaken in the evaluation procedure concerning the issues of interdisciplinarity and innovation.

The fact that it is difficult to promote innovative research, and especially interdisciplinary research, is not new in science. The intention to advance knowledge by calling into question the current understanding, with its attendant paradigms and assumptions about quality criteria, usually suffers in a conventional peer review process known for its conservative and risk-minimising characteristics (Hackett and Chubin, 2003).

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<sup>4</sup> For a description of the projects see <http://www.coreorganic.org/research/index.html>

Large pluri-disciplinary panels are acknowledged to be more efficient in evaluating interdisciplinary research.<sup>5</sup> When the peer panel comprises a healthy balance of the disciplines involved in the proposal, the panel system allows broad representation of divergent judgements and conflicting validation norms (Porter and Rossini, 1985). Furthermore, this system allows open debate about criteria assessments; this, when combined with a rough rating-scales model, is acknowledged to bring support to controversial innovative and interdisciplinary projects. From this perspective, a low level of agreement among reviewers on a peer panel is not an indication that the assessment lacks validity or legitimacy (Langfeld, 2001). Rather, it may indicate that the panel is highly competent because it represents a wide sample of the various views on what constitutes good and valuable research. The challenge, then, is to find a diverse set of experts that encompasses the various facets of a set of proposals, and to avoid duplicative perspectives. It can be assumed that the following prerequisites were met in the CORE Organic pilot call: each expert had basic knowledge of OFF, had been involved in OFF research projects that mobilised interactions with other disciplines (systemic and interdisciplinary approaches), and possessed expertise in at least one of the three identified topics. Both a rough rating scale and open decision-making process were used and low inter-reviewer agreement was achieved.

Nevertheless, it seems that innovation in OFF needs to be strengthened. We suggest that a specific mechanism should be implemented in the evaluation process in order to allow a few "risky" research projects to be funded, *i.e.* to give temporary credibility to innovative work. At the same time this could facilitate the entry of newcomers into the arena and promote exploratory research projects. This procedure could be extended to projects which show a strong interdisciplinary dimension but a certain methodological weakness. As a gate-keeping mechanism, a later assessment step could also be implemented, consisting for example of a tutorial on the ongoing research.

At the same time, considering research evaluation as a negotiation and knowledge creation process, we advocate stronger longitudinal interaction among the applicants and assessors. This would not only generate competence, but also create a communication base that increases the number of people capable of conducting interdisciplinary evaluation with rigour (Klein, 2006).

## Conclusions

Criteria and procedures used in the CORE Organic pilot call were judged as relevant by most of the stakeholders involved. However, the assessment process could be improved. Further work should focus particularly on refining criteria, devising mechanisms to allow funding of a few "risky" research projects, and allowing longitudinal interaction among the applicants and assessors.

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<sup>5</sup> A panel of 8 to 12 experts has been shown to be a good number.

However, the views expressed herein are those of the authors and may not be regarded as reflecting the views of the Commission of the European Communities.

**Tab. 1: Evaluation criteria for the selection of organic food and farming projects used in the CORE Organic pilot call and suggestions for improvements.**

Evaluation criteria	Comments and suggestions for improvements
1 Scientific Innovation	
1.1 Innovative research	
1.2 Scientific quality	This is the place to assess aims, hypotheses, novelty, new ideas, cross-disciplinary approaches, and knowledge of the literature. The experts have to apply their own ratios and weightings between all these aspects and summarize them into two simplifying criteria. More sub-criteria should be included in this category, e.g., whether the project is oriented towards problem-solving or not.
2 Methodology	
2.1 Choice of methods	
2.2 Plan for publication	
2.3 Plan for knowledge transfer	Contains diverse criteria, <i>methodology</i> corresponding more to scientific quality, and others linked to dissemination. They should be considered apart, and criterion 2.3 may include whether or not non- scientific partners are involved.
3 Consortium	
3.1 Qualification of consortium	
3.2 Complementary expertise	
3.3 Interdisciplinarity of consortium	
3.4 True cooperation	Heterogeneity and overlapping definitions of the sub-criteria: "skills" of the individuals and groups to handle the research and "practical capacity" of the consortium to handle the project. <i>Interdisciplinarity of consortium</i> is not explicitly defined. The fact that different aspects of interdisciplinarity are assigned to different main categories weakens their significance.
3.5 Trans-national linkage	
3.6 Scientific networks	
4 Project Management	
4.1 Project management	
4.2 Research plan	
4.3 Financial requirement	These sub-criteria are considered difficult to judge by the experts. Additional types of skills and experts (management and organizational experts) should be included.
5 Relevance	
5.1 Relevance for OFF	
5.2 Relevance to the call	
5.3 Societal relevance	This criterion should include assessments of knowledge users. This is supported by the literature and by the experts, who state that assessing <i>Societal Relevance</i> is difficult for them.
6 Added Value	
6.1 Added value for EC research	
6.2 Trans-national aspects	Difficult to address this criterion that tries to assess the "emergent" components of the partnership.

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