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## **GECOphyto: a collaborative knowledge management platform to reduce pesticide use.**

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The debate on pesticide use reduction in European Union has brought to the approval of the directive on the sustainable use of pesticides. In order to support the National Action Plan of pesticide reduction, French Agriculture and Environment Ministries asked the National Agronomic Research Institute (INRA) to carry out a national expertise study, Ecophyto R&D, in partnership with other research and development agencies. One of its main objectives was to define the structure of a national research and development network aiming at acquiring knowledge on integrated cropping systems. Requirements for an information system were established in order to support knowledge exchanges among researchers, farmers, advisers and teachers (Reau et al. 2010). The proposed information system is divided into two “pillars”: a database on experiments (BASEcophyto) and a collaborative platform (GECOphyto). In this paper, we describe the requirements we established for the GECOphyto platform. The aim of this platform is to support learning processes for a sustainable use of pesticides and make such processes more effective by sharing experiences and tools.

### **Methodology**

GECOphyto is intended to integrate knowledge from different categories of professionals willing to participate in the development of integrated farming systems in France: researchers, farmers, advisers and teachers. All these actors are GECOphyto’s potential users and they can all have the role of *contributors*, bringing knowledge on the platform, on one hand and the one of *information seekers* on the other hand. Nevertheless, we decided to structure the platform by focusing on what is needed to carry out an agricultural advice. Indeed, some authors (e.g. Lamine et al. 2009) showed the key role of advice in the farming learning processes. We also can consider that advisers play an important role to foster knowledge sharing between farmers and other stakeholders. Thus, in order to identify the *resources* needed for agricultural advice, we firstly built an analysis framework adapting the one proposed by Labarthe (2006) who represented the advisory relation as requiring the combination of a set of tasks. By *resources* we mean documents and tools which are useful to build, develop and assess integrated farming and to foster learning processes. The second step has been to carry out an enquiry with 12 potential users, mostly advisers, covering the identified tasks: *reference production, technical communication, farming practices follow-up, professional skills update*. The main points highlighted by the enquiry were: (i) advisers’ needs vary according to the task which is at the core of their job; (ii) even if experimental outcomes are crucial for most of them, other kinds of information are nevertheless important. Additionally, most of interviewees mentioned the fact that they feel isolated and acknowledged the need to limit data scattering and to exchange information in an effective way. Thus, while BASEcophyto will offer a database which capitalize data on experiments in order to satisfy some of the research and development needs, GECOphyto is designed as a collaborative platform to encourage advisers and other potential network’ participants to share their *resources*. According to this and through the analysis of existing information systems, the platform’s outline was defined by a group of six experts.

### **Results and discussion**

GECOphyto is to be developed as a web-based open collaborative tool in order to allow to widespread scattered and gradually accumulated information. Its structure is based on the identified advisers’ tasks (see figure 1). Each of those tasks represents a thematic area organised in few specific topics in which users can store resources as well as share experiences through an interactive space (a *web forum*). Moreover, it will be possible to comment a resource, allowing reactions to what is shared. Stored

resources are indexed and characterized by metadata (e.g. region, crop type, etc.), which allow users to explore the platform from another entry than the advisers' task one.

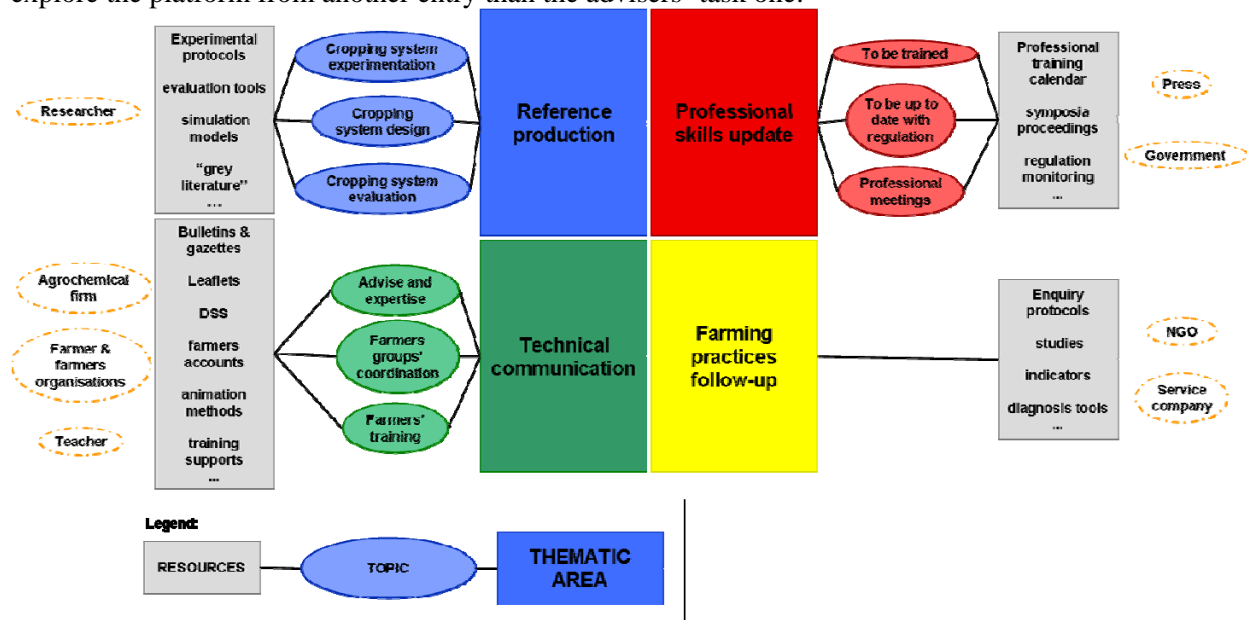


Figure 1. Structure of the platform according to the advisers' tasks

The platform is designed to enable resources share within the adviser community but also as to integrate knowledge coming from other kind of sources: farmers, researchers, agrochemical firms, NGOs, etc. Indeed, other categories of stakeholders can use the platform to disseminate their resources and potentially have a large feedback. As well, the platform offer them the opportunity to better understand what is used and needed by advisers to support the development of integrated farming.

As this issue is characterised by uncertainty, resource contribution will not be submitted to a validation process. Users will be accountable for their contributions. They will have the possibility to upload files directly on the platform or just describe the resource available and specify its access conditions.

In order to encourage resources exchange, experience sharing and enable skill development, the platform will be managed by a team of coordinators. They will ensure the information flow from the Ecophyto R&D experimental network, supervise resource contributions, lead discussions on forums, monitor regulation and update incoming events such as symposia. In the requirements, it is also suggested that the organisation which will manage the platform must (i) have a national scale and be present all over the country; (ii) be able to gather expertise regarding diverse cropping systems, from arable crops to fruit growing.

GECophyto is meant to represent a virtual reference for sharing methods, tools and ideas, and a tool to be up to date with recent findings and trends on integrate farming. Its development should start in 2011, while the test of the Ecophyto R&D experimental network is already ongoing in some French regions.

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