



## **Shared Innovation Space for Sustainable Productivity of Grasslands in Europe**

Project Acronym: Inno4Grass

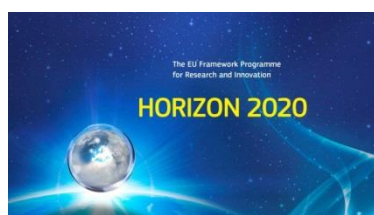
Project Number: 727368

Deliverable No. 4.2

Identification of the IMS to be used for storing the description of farms and for calculating the indicators of performances and IT programming for on-farm data collection

Responsible partner: INRA, France

Submission date: 1. Submission: 3 April 2018 / 2. Submission after revision: 15 October 2018



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727368

## Content

<b><u>IMPLEMENTING AN ADAPTED IMS (INFORMATION MANAGEMENT SYSTEM)</u></b>	<b>3</b>
<b>GATHERING ALL INNO4GRASS INFORMATION AND KNOWLEDGE</b>	<b>3</b>
<b>IDENTIFICATION OF A SUITABLE DATA SYSTEM FOR STORING DATA FROM FARM SURVEYS</b>	<b>6</b>

## **Implementing an adapted IMS (Information Management System)**

Inno4Grass project is generating a very broad range of data, information and knowledge. The IMS has been defined

- to handle the wide diversity of materials,
- to facilitate the searchability and thus increase the access for the farmers, students and farmer advisors,
- to be able to use this resource to extent the knowledge database available on grasslands and the whole production systems based upon grasslands.

Two main original components have been set: i) the overall IMS organized as Encyclopedia pratensis; ii) the information system to store the alpha-numerical data that is describing the farms and the case studies.

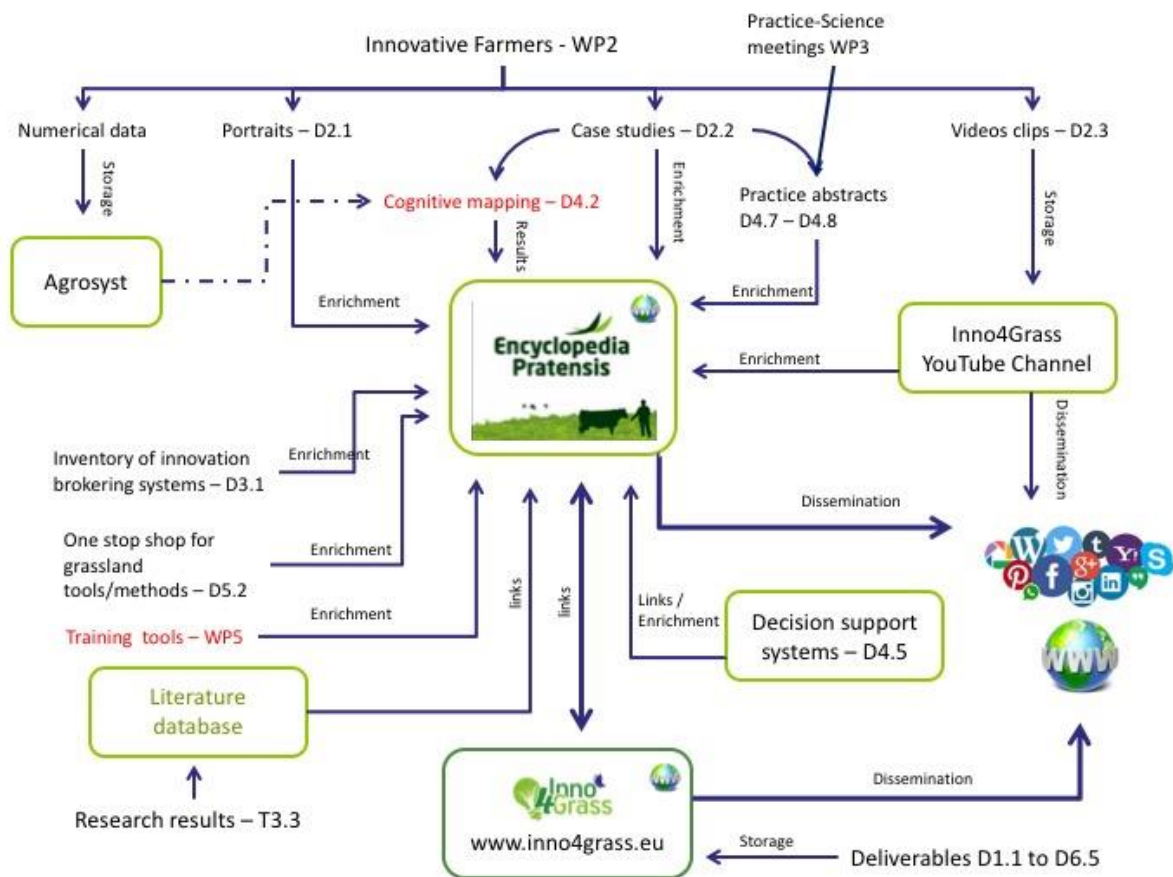
### **Gathering all Inno4Grass information and knowledge**

Encyclopedia pratensis was a knowledge database built in a previous FP7 project (Multisward). This knowledge database had been defined according to a Wikipedia process. The whole content has been transferred into a WordPress environment offering many more possibilities for creating contents, storing a wide diversity of sources and contents (texts, films, sheets, tools), and for making them searchable.

A major attention has been paid to the connections between all components of the Inno4Grass thematic network and the IMS. The figure below shows how all activities of the project from the various work-packages will fuel the IMS.

When a relationship is mentioned as 'Enrichment', it means that the contents and deliverables provided by a given work-package will be stored and accessible via the IMS.

When a relationship is mentioned as 'Link', it means that from the IMS, there will be a direct access to the resources that are present and available on other information systems or sites.

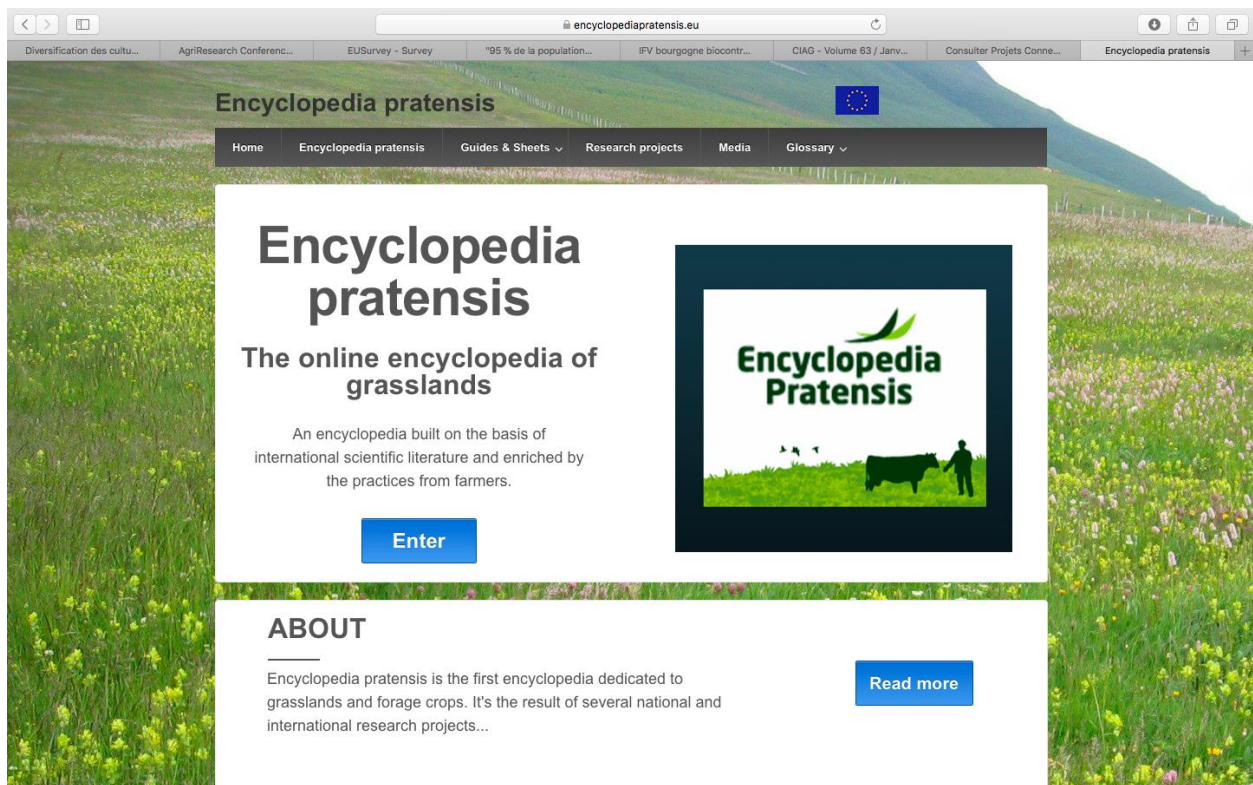


It is essential to make this IMS lively, agile and available for a long period of time

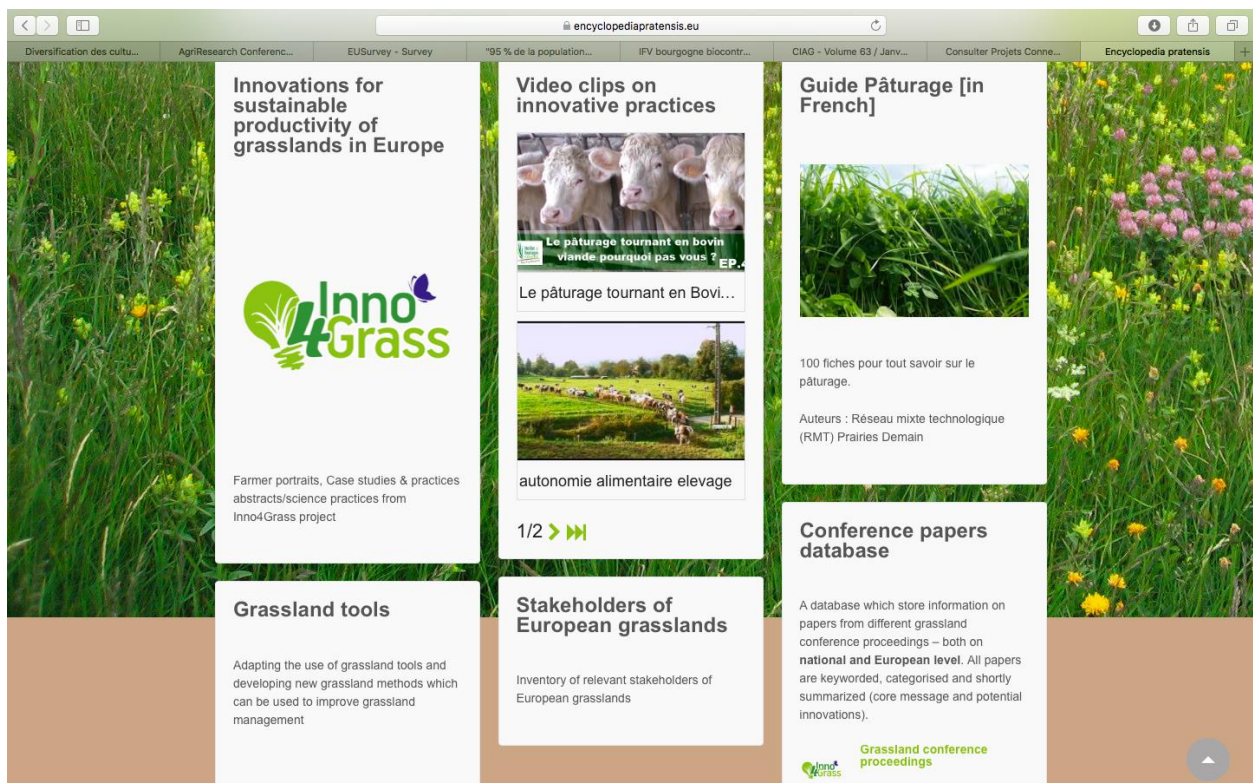
- Lively: a regular update of the content will be ensured and cross-links between compartment will make this content of greater interest
- Agile: the WordPress system was selected as it greatly facilitates the continuous improvement and enrichment of the IMS
- Long-term availability: the IMS is hosted on external servers, and the servers have already been paid for the next ten years.

To illustrate the content of the IMS, some screen captures are presented:

- 1- The home page of the IMS Encyclopedia pratensis and the direct gate to the knowledge base

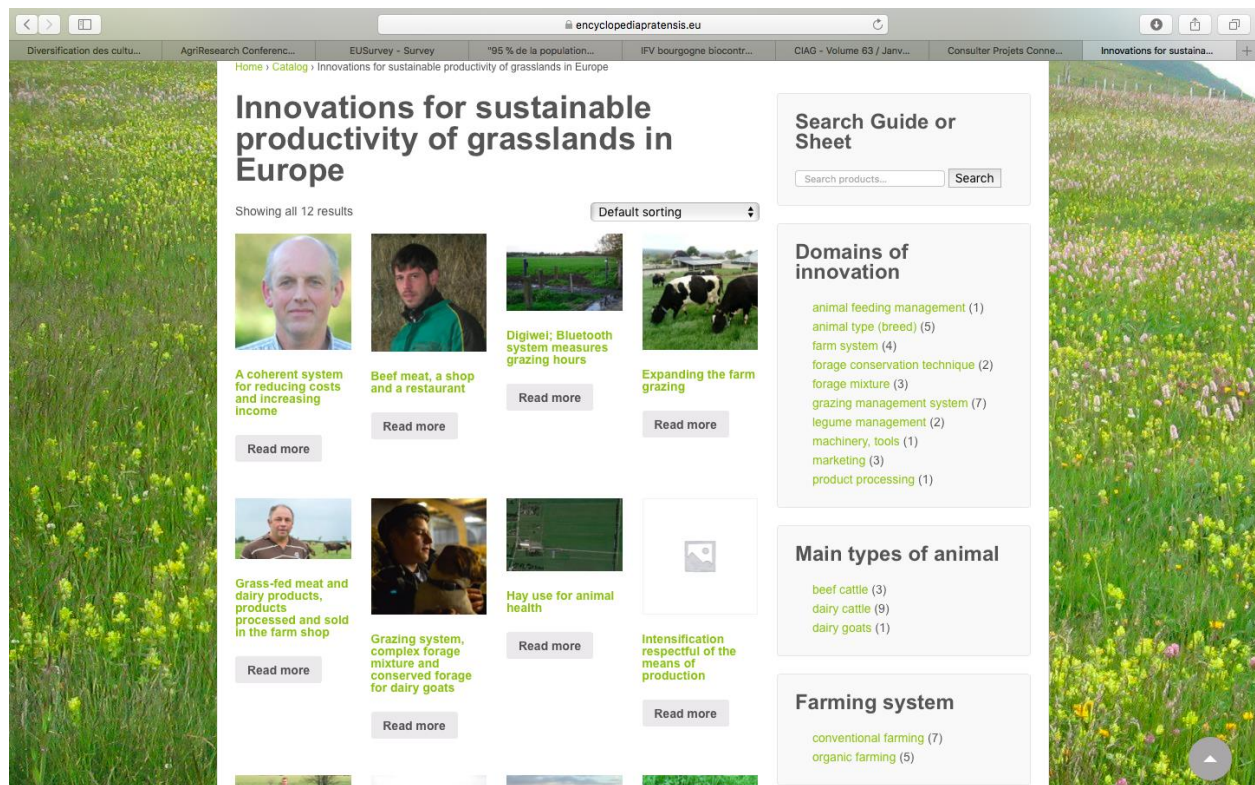


- 2- The gates to the various contents produced by Inno4Grass project: i) Inno4Grass and the farmers portraits, case studies and practices abstracts; ii) the video clips to illustrate all practices abstracts; iii) inventory of brokering systems; iv) conference papers database.



- 3- Illustration of the farmers portraits, case studies and practice abstracts and the possibility for searching according to innovation domains, animal types, farming systems





## Identification of a suitable data system for storing data from farm surveys

A set of existing data systems was reviewed on the basis of several criteria:

- quality of the description of the farms and farm environments
- quality of the description of the individual agronomic practices
- calculation of indicators of economic and environmental performances
- security of the data and quality of data management
- possibility to get software adaptation to adapt the descriptors to Inno4Grass objectives

Among all reviewed data systems, we chose Agrosyst (Milestone 9).

This data system was developed by INRA, as a tool for storing and processing data collected in real farms in the Ecophyto project. This data system is handled by two research groups, the first one located in Orléans in charge of the programming and the second one located in Dijon, in charge of the agronomic quality and relevance of data structure. Both groups are members of the Environment and Agriculture research division and under the authority of the Agriculture Scientific Directorate that is coordinating the action of INRA in the Ecophyto project.

The strengths of this data system are

- security of the data. Access is secured through passwords. Once registered and authenticated, a person can only get access to the data that he/she typed or downloaded. Access to a broader range of

data is only given by the administrative curator if the persons who deposited the data give a written authorization. Individual data are protected and not accessible to anyone.

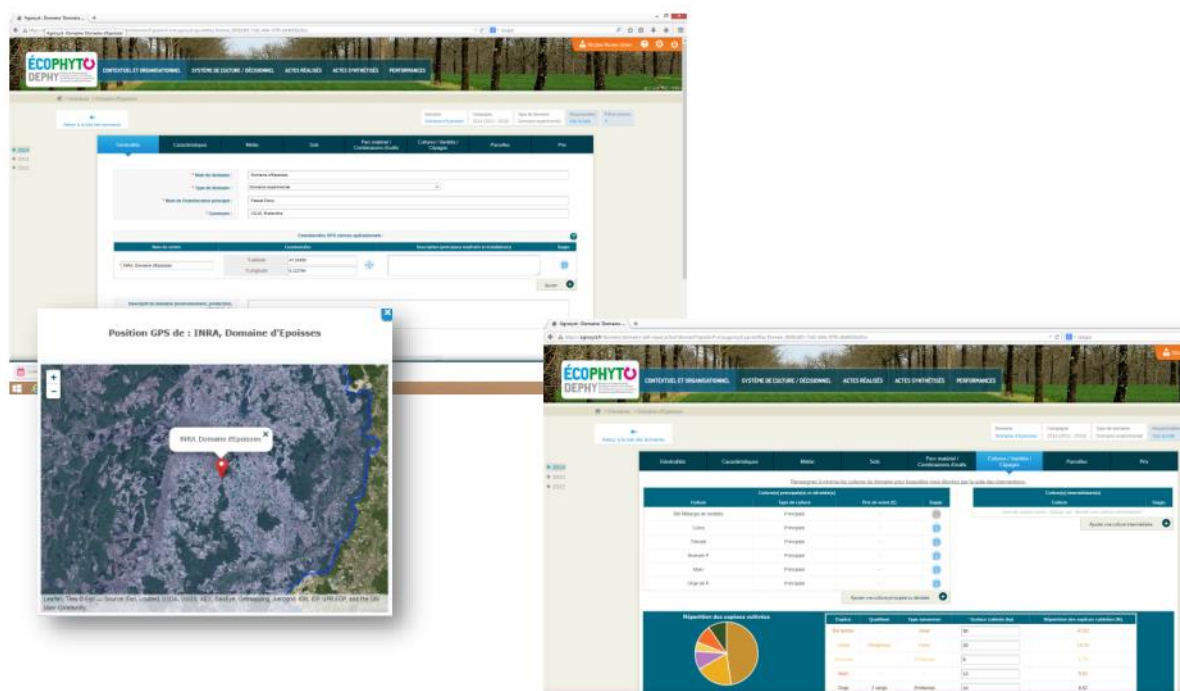
- Reference data. In order to describe a farm, any data system uses a wide range of reference data, such as list of soil types, list of machinery, list of varieties, .... Agrosyst handles more than 60 reference data lists covering all aspects of farm issues for a wide range of productions. Moreover, part of these reference data is regularly updated through API protocols.
- Descriptors.
  - A farm is described through its physical and biological environment, its structure (field size and field margins), its equipment, its human resource.
  - Every production is described through the practices that are implemented during the growing season. This is done either through an average practice (average over seasons or over all fields related to the same production system) or through a detailed study of a given year.
  - Decisional system is described. The decision system is used by the farmer to decide all the succession of practices and the coherence among practices.

This system had some weaknesses:

- in the existing data, even though there were numerous farms with mixed farming (plant + animal production), only a limited number of descriptors were devoted to the animal production system. This has been modified and enriched. To do so, the missing items were identified by comparison of the existing ones and those listed in Deliverable 4.1. A discussion with the Agrosyst team was set for adapting the code and adding the new descriptors.
- due to the very fine description of the farms, there are many screens to be filled and this requires a training. There were two possibilities:
  - o To alleviate this limitation, an online help could have been proposed. However, as a total, the number of farms to described was low, and above all every partner is in charge of a limited number of farms. So, the training and support costs would have been high
  - o The second option would be to appoint someone dedicated to feed the data from all the survey and case study farms into Agrosyst. This person will be adequately trained and hosted by Inra, France.

Some examples of the typing screens of Agrosyst are given below.

## Example of Agrosyst pages



## Example of Agrosyst pages

### Choice of equipment

Retour à la liste des domaines

Domaine: Domaine d'Epoisses | Campagne: 2012 (2011 - 2012) | Type de domaine: Domaine expérimental | Responsables: Voir la liste

Généralités | Caractéristiques | Météo | Sols | **Parc matériel / Combinaisons d'outils** | Cultures / Variétés / Cépages | Parcelles | Prix

Ajouter un matériel

\* Matériel: TRACTEURS CLASSIQUES

\* Caractéristique 1: 4 RM - Cat. B: 96 à 135 ch = Cat. A + suspension du pont avant de série

\* Caractéristique 2: 106 à 115 ch

\* Caractéristique 3: 116 à 125 ch

\* Utilisation annuelle: 126 à 136 ch

\* Nom: ex. : Tracteur classique

Autres caractéristiques:

Matériel ETA / CUMA: ☐

Annuler Valider

Cette liste n'est pas exhaustive. Sélectionnez les matériels les plus proches de ce qui existe sur le domaine.

Tracteurs: Tracteur 100cv

Automoteurs: Moissonneuse



## Example of Agrosyst pages

### Description of crop rotation

Généralités

Cultures associées  
Rotation

Cultures pérennes  
Caractéristiques de la plantation

Itinéraire technique

Prix

Cultures du domaine Domaine d'Epoisses pour la(es) campagne(s) 2007, 2008, 2009, 2010, 2011, 2012 :

Ble Mélangé de vari...

Colza

Triticale

féverole P

Mais

Orge de P

COLZA ASSOCIE

POMMIER

Masquer les informations des connexions

Supprimer la rotation

Pour dessiner le cycle de cultures associées des campagnes d'application du système synthétisé étudié, vous devez cliquer sur les cultures disponibles et les déplacer tout en restant cliqué. Le glissé-déposé vous permet de positionner les cultures dans la succession de cultures. S'il y a plusieurs cultures, vous pouvez les relier entre elles et déclarer une culture intermédiaire en cliquant sur la connexion.  
Si vous souhaitez boucler le cycle, vous devez cliquer sur la dernière culture et cocher la case « Fin de cycle ». Vous pouvez alors relier cette dernière culture à la première du cycle.

ANNULER

ENREGISTRER