ENDURE

European Network for Durable Exploitation of crop protection strategies

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Report about test phase of ENDURE-IC and fine tuning for the final version

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Glossary

EIC	ENDURE Information Centre
Database	Facility to persist structured data.
EPPO	European and Mediterranean Plant Protection Organization
NUTS	Nomenclature des unités territoriales statistiques
Report	Summarizes all the data inserted by an expert to describe a certain application of measure.
Use case	Defines an interaction between a user group and the system

Summary

The EIC is a dynamic web-application which disseminates information on best practices, IPM measures and non-chemical alternatives in crop protection. EIC is a central point of reference for extending expert knowledge, recommendations and advice for extension services, advisors, farmers and researchers. For the users it provides a search of crop – pest/disease - region combination with IPM measures as the result.

Currently the ENDURE Information Centre contains 148 reports about IPM in arable crops, fruits and vegetables.

The identification of needs and suggestions of advisors are very important for the development and improvement of the ENDURE Information Centre. Therefore a series of internal and external testing was carried out in national and international tests and feedback sessions. This feedback contributed to make choices, set priorities about the performance of EIC and implement the functions accordingly.

Introduction

The report describes the development of the merged Endure Information Centre (EIC): a web based application, combining web applications ENDURE-ALPS and ENDURE Information Centre. The new system is named Endure Information Centre. The improvements based on internal and external tests with users and user feedbacks as well as the results of its test phase are subject of this report.

In the original set up of the ENDURE description of work two different activities (IA4.1 and SA4.1) were responsible for the development of tools for knowledge management and transfer of information. The web applications were developed for different structure of the content and target groups. IA4.1 explicitly intended to provide expert knowledge about non-chemical alternatives in crop protection, facilitating an exchange of knowledge between researchers and informing advisors.

ENDURE-ALPS was an expert system relying on expert knowledge on specified crop-pest/disease combinations and the NON-CHEMICAL measures to control the specific pest/disease. The practicability of the measures is evaluated by the expert, not all measures are necessarily ready to use. A number of documents about a specific combination are summarized by the expert and uploaded as one report.

The ENDURE ProjectDB is a database with information of relevant ongoing and past research projects regarding NON-CHEMICAL control measure. This database is included in the ENDURE-ALPS system.

The old ENDURE Information Centre (EIC) is a document data base which provides an English summary is for each published document. The documents provided reflect the current best practice for pest/disease control in a certain crop including the use of pesticides.

The merged web application EIC combines the requirements of both systems and serves two target groups and relates to these target groups services. The necessary procedures are developed and implemented.

User feedback is an essential part for the permanent improvement of the application.

The merged web application is hosted at a server provided by SSSUP in Pisa and it is online since April 2008 with the following address: http://www.land-lab.org:8888/alps/search.xhtml.

1. The prototype

1.1. The old EIC prototype

The description of the old EIC prototype and the test by internal users (ENDURE partners) and external users was subject of deliverable DS4.3 "A first prototype of Endure-IC filled with potato data and tested by stakeholders".

1.1.1. Homepage

The homepage described the goal of the EIC, the validation criteria and how to use the tool.
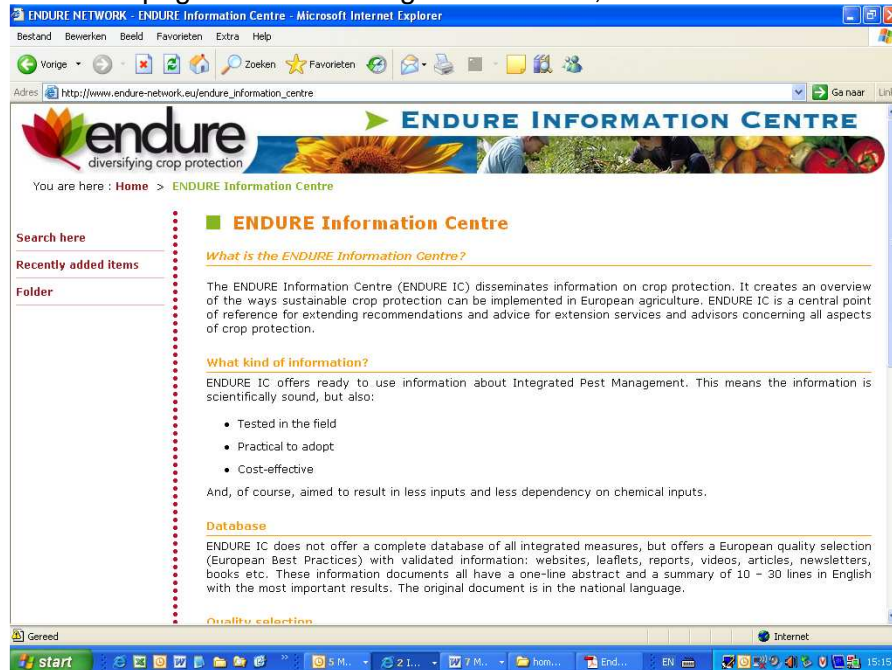

Figure 1: EIC (old) homepage

1.1.2. Search screen and results

Users were able to search in Endure IC with a simple search screen. Documents are searchable through look-up tables: crop, pest/disease, control measure and country.
The results were listed in a short presentation with an English title and a one-line summary. Then a choice can be made among an abstract, the full record with all metadata and the full text of the original document.
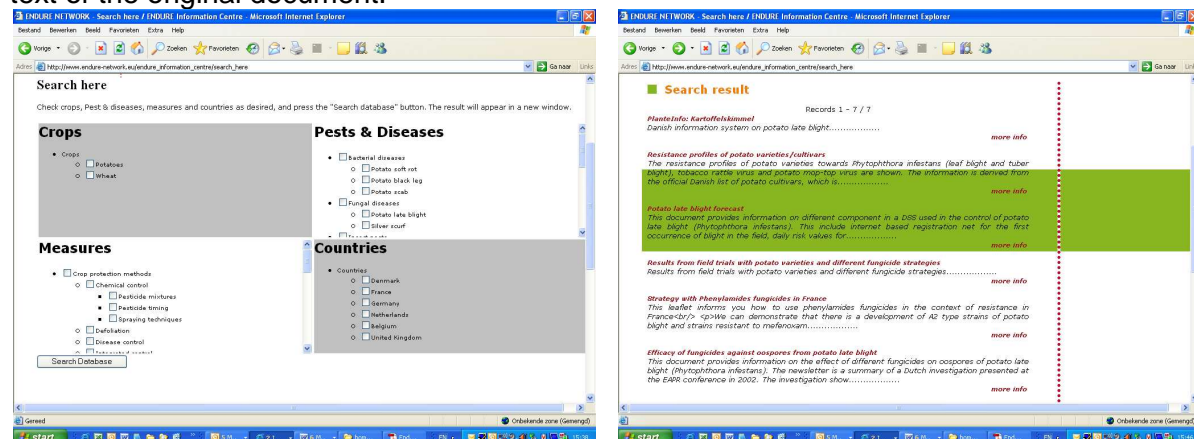

Figure 2: EIC (old) search screen and results display

1.1.3. Upload screen

The upload procedure was facilitated by the open source system "WordPress" customized for the EIC.
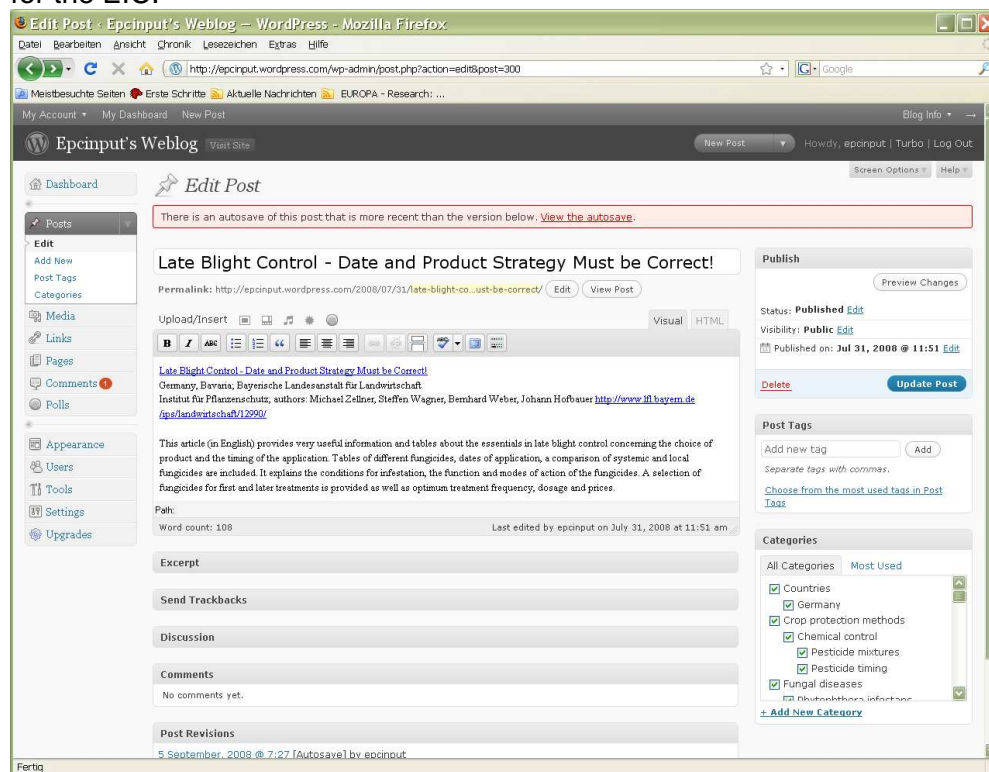

Figure 3: EIC (old) upload mask

1.2. The old ENDURE-ALPS prototype

1.2.1. Search and results

The first prototype of the search screen based on a search combination of crop-pest/disease-measure-region and additionally the expert who uploaded the information was searchable. The list of results was presented underneath the search boxes.
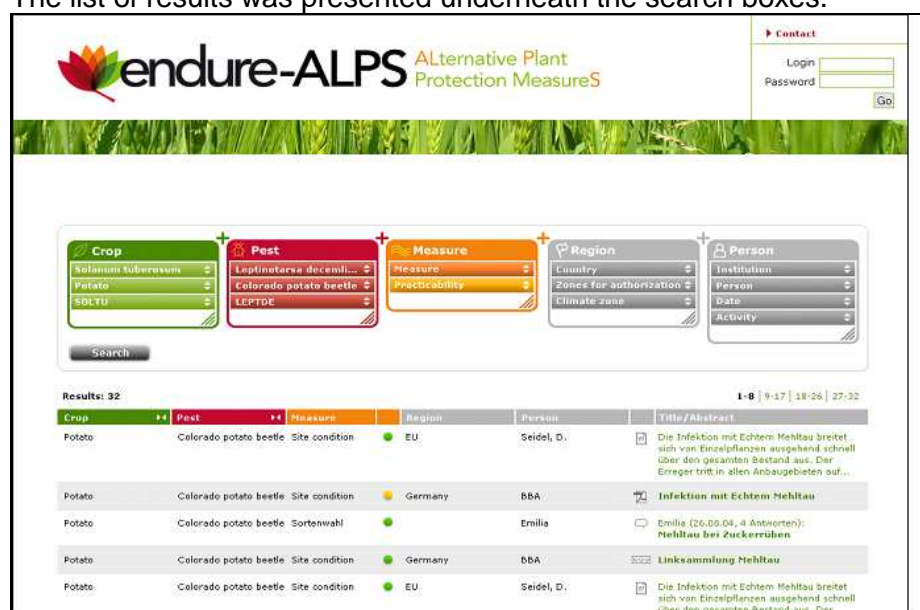

Figure 4: ENDURE ALPS search screen

From the result list a specific report could be chosen and was presented on a separate page.

Figure 5: ENDURE ALPS display of results

1.2.2. Upload screen

The upload screen and the implemented functionalities were developed just before the merging of both systems and the new interface for the EIC was adopted.

1.3. The new (merged) Endure Information Centre (EIC)

The merged web application is still hosted at the 'Test server' provided by SSSUP. The EIC is available online at: http://www.land-lab.org:8888/alps/search.xhtml .

The merge of both web applications (ENDURE-ALPS, EIC) was carried out in the beginning of 2009.

A set of functional demands based on proof of principles was produced by the old EIC and were adapted for inclusion to the new EIC based on the data base structure of the ENDURE-ALPS system. The ENDURE-ALPS database structure was described in DI4.7.

A number of modifications in programming were required to integrate the functional demands and the already existing content of the EIC. Many of the demands are reflected in the new Endure Information Centre and are still subject of ongoing work.

1.3.1. Homepage

The homepage is hosted at the Endure public web site http://www.endure-network.eu/endure_information_centre informing about the goal of the EIC, the selection procedure for the content and how to use the system. A duplicate of the homepage will be created for the application itself ensuring that users who directly enter the EIC are provided with the relevant information.

The standard header for the EIC website was implemented.
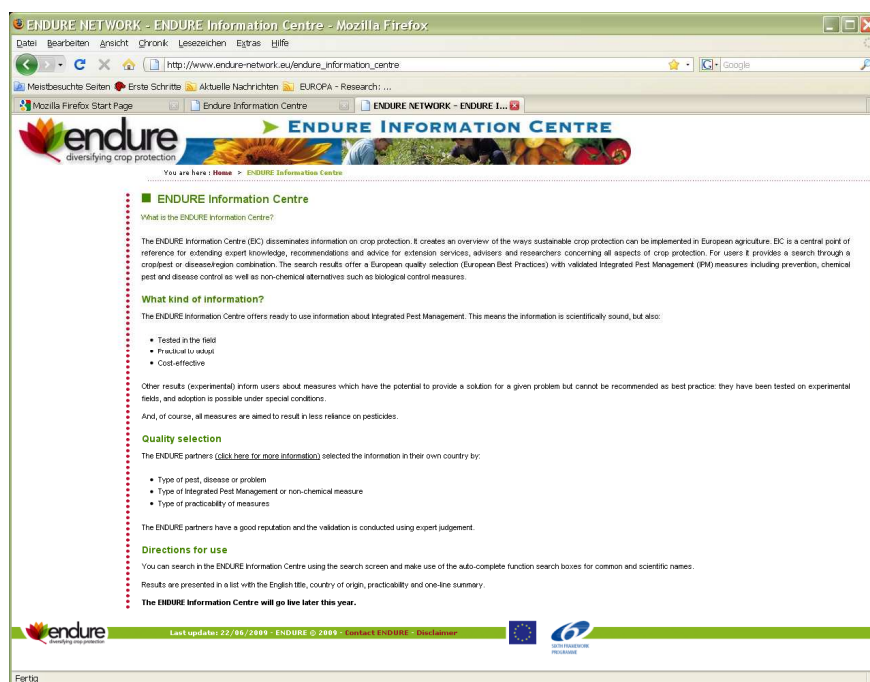
Figure 6: EIC new homepage

1.3.2. Search

The search is divided into tables with crop, pest/disease, measure and region. The tables for crop and pest/disease are based on the EPPO Code (EPPT)[1]; the measure table was produced by the partners and includes integrated as well non-chemical methods in plant protection; the region table is based on Nomenclature of territorial units for statistics (NUTS)[2] of EUROSTAT.

The search screen and its functionalities have been improved several times.
Improvements took place in October 2008, January, March and May 2009; the next update is planned for July 2009.

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[1] http://eppt.eppo.org/
[2] http://ec.europa.eu/comm/eurostat/ramon/nuts/basicnuts_regions_en.html
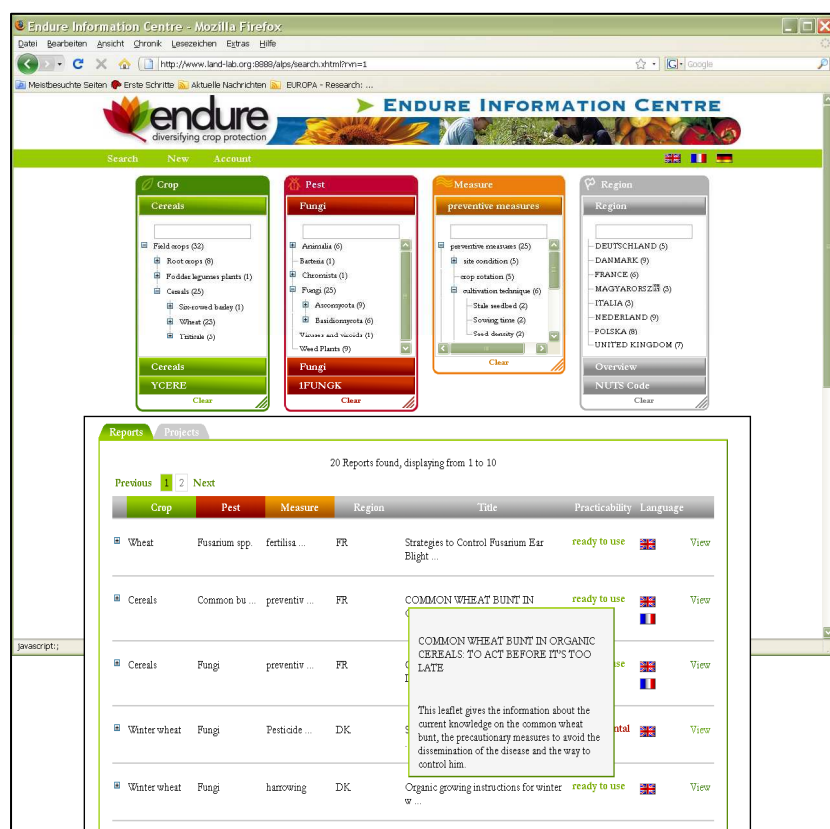
Figure 7: Search mask and report result list

The navigation was improved and user friendly features introduced.
This includes:
- choice of user language for the search table content indicated by flags in the green header
- the display of numbers of results for an entry in crop, pest/disease, measure and region table as well as to their combinations,
- a 2-line summary was implemented with tool-tips (pop-up) additionally to the title
- separate lay out for the report results (green frame) and project results (red frame) to avoid confusion
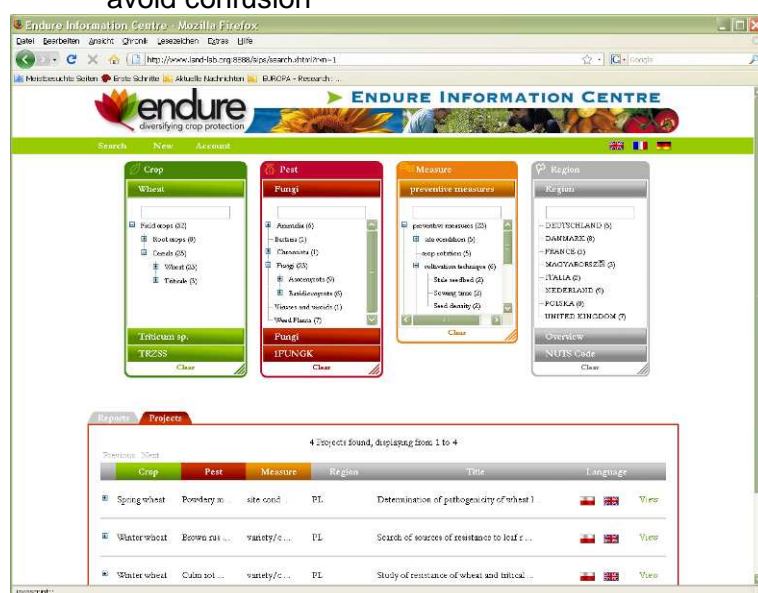
Figure 8: Project result list

1.3.3. Upload screen

The upload screen was implemented in December 2008 and updated in January 2009 including the new requirements due to the merge with of the EIC.

The possibility to distinguish between 'Expert Review' and 'Document Summary' was implemented.
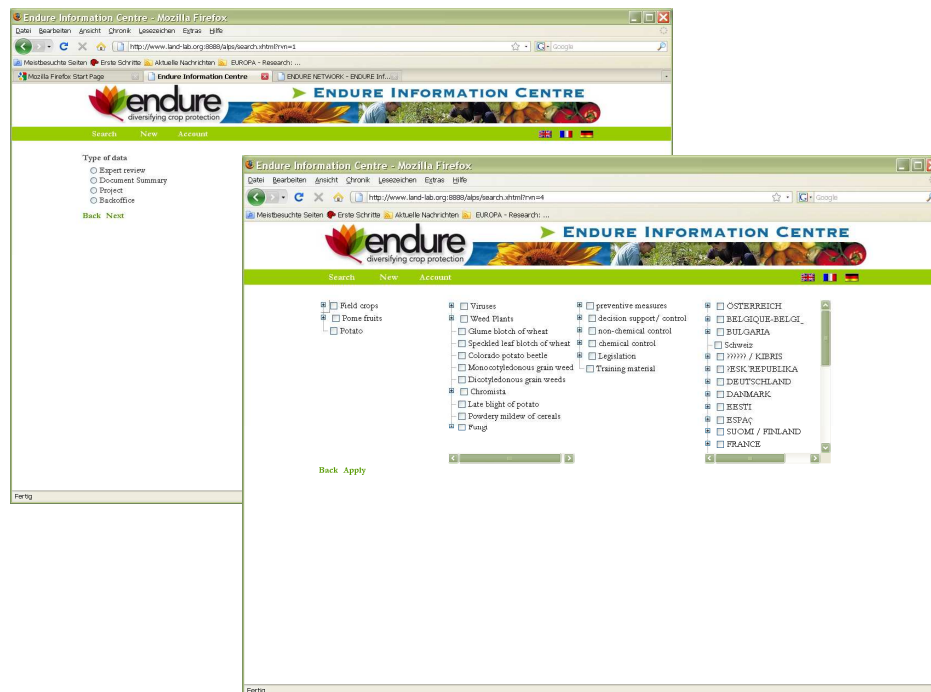
Figure 9: Upload mask, step 1 and 2

The experts choose the use case (crop-pest/disease-measure-region) by using tick boxes.

An additional function the 'Account' was implemented; the display of on the experts reports already in the data base.
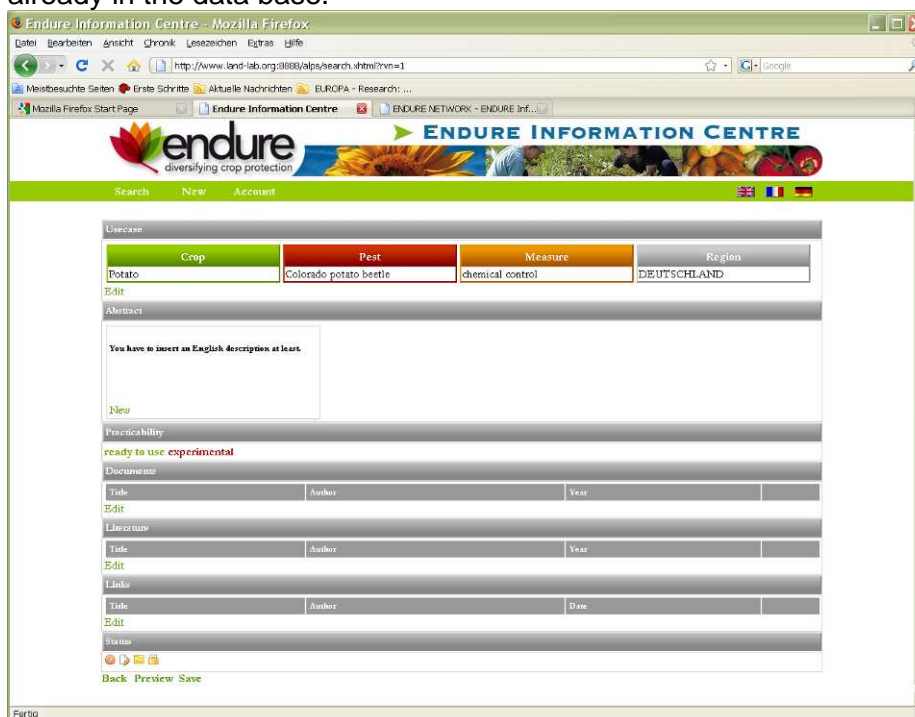
Figure 10: Upload mask; step 3

A detailed description of the upload procedure is given in the EIC Manual which was produced (M27) and is available at the ENDURE workspace.

2. The test of the prototype

The collection of user feedback, the assessment of feedback results and the implementation of the required improvements are an essential subtask in the development of the web based application.

In the course of the development several feedback sessions addressed the different target groups (researchers, advisors).

2.1. Test method

Due to the separate development of both web applications separate tests and feedback workshops took place till the merge of both systems. Nevertheless similar approaches in testing were followed. The old EIC and the ENDURE- ALPS were tested first internally by ENDURE researcher to ensure minimum quality. With retrospective view all test results were very useful because they reflect the users' needs and demands on such a web application. The outcome of all tests was considered and partially implemented in the merged new EIC.

2.1.1. Testing the old EIC

The old EIC was tested first internally by ENDURE researchers before being tested externally by advisors. All tests were based on similar test protocols and took place at the different partner institutions.

The first internal test (April 2008) was an individual test based by all partners on the test protocol (see Annex A) in order to ensure structured feedback on the quality of the system. The feedback was evaluated and discussed with the group for further requirements on the implementation. The second internal test by all partners was an individual test as well evaluating the improvements and the presentation of the content. It took place in September 2008 and the feedback was discussed in October 2008.

The external tests were a mix of individual testing and group discussions based on a test protocol. These tests were carried out with advisors in June 2008 in different partner countries (UK, HU, FR, and NL). The external tests with advisors expressing their expectations and demands on such a system were very valuable for the definition of further improvements. The outcome of these test sessions was evaluated and the respective outcomes were considered for implementation.

2.1.2. Testing ENDURE-ALPS

In parallel to the EIC the development of the ENDURE-ALPS application took place. In June 2008 group members tested the application and the presentation of content. The results were discussed at the group meeting in July 2009. For the upload procedure a simple form was developed and the upload of content was tested in summer 2009. The improved application was presented at the ENDURE International Conference and the Annual Meeting 2009 in France.

According to the feedback of tests the main focus of the developments in ENDURE-ALPS was on the development of a user friendly upload mask which allowed experts to enter the content directly in the system based on the crop-pest/disease-measure-region combination.

2.1.3. Testing the merged system EIC

The merge of both web applications required a new assessment of user requirements. The requirements were defined in a meeting of both groups in January 2009 and tested in individual and a group test in March 2009. A document with requirements was developed

and improvements implemented till June 2009. In June 2009 a test with an international group of advisors based on a test protocol took place as well as a national test in NL. The feedbacks were evaluated and are included in the current implementation plan.

2.2. Test results and improvements

Test results and the outcome of user feedback were scrutinized carefully and priorities for implementation were set. Many issues from feedback workshops were valuable and discussed but the timeframe for implementation and the true need for certain features are the criteria for selection.

2.2.1. EIC

The results of the EIC tests were subject of DS4.3 "A first prototype of Endure-IC filled with potato data and tested by stakeholders". Only a few items with relevance to the merged system will be mentioned the following chapter.

2.2.1.1. Search

Major improvements were demanded for the facilitation of the search mechanism especially related to a *structured hierarchical way of searching* "*in line with Endure-ALPS (Crop, pest/disease, Control measure/topic, region/country)*" based on tables rather than the existing boxes (figure 2). The search should be possibly including "*translations in all languages and decrease of empty searches*".
An improved presentation of the *list of search results* was recommended. Search results were demanded to be displayed in "*an overview with English title, country, language, keywords and first line summary*" and "*a new format for the summaries will be developed*".
Users prefer clear choices between full text, full record, and complete abstract. To start new searches a "*clear all fields button*" is necessary.
The external users emphasised the need for "*Google-like search documents*" and "*Google sitemaps*"

2.2.1.2. Upload

In the old EIC a two step approach was used for uploading the content. As first step the summarized information and the documents were uploaded to the open system 'Word press' and a library team from WUR University included the information into the online EIC. The Word press system was tested internally by partners. The upload procedure in the two step system proved to be difficult and time consuming; transparency and direct display of the uploaded content was missing.

2.2.2. ENDURE-ALPS

2.2.2.1. Search

The table with crops was too complex to ensure simple search and retrieval of the wanted combinations. So the tree was simplified. A way of simplification may still be necessary for the pest/disease table but more urgently in the upload mask.

2.2.2.2. Upload

The upload procedure was improved from a two step approach which consisted of submitting a harmonised word protocol to the administrator into the online approach to directly submit the report to the web application.

2.2.3. The merged EIC

The invested work in both web applications is reflected in the current application of the EIC which took stock of all the experiences and the user feedback for both systems. The EIC

addresses now a greater audience of advisors and researchers by the differentiation between 'ready to use' information for advisors and information in 'experimental' stage for researchers.

The EIC is currently available for users on http://www.land-lab.org:8888/alps/search.xhtml with user: endure and password: demo. This log in provides reading access only. Experts' access for uploading reports to the EIC is granted usernames and password after registration with the administrator at the JKI.

Two manuals guiding the user (reading access) and the expert (access for upload) were developed and are available at the ENDURE collaborative workspace (https://workspaces.inra-transfert.fr/QuickPlace/endure/PageLibraryC12574200058EF19.nsf/h_1663B264B5913AEDC1257420005A0A9E/D26E234C3C583582C12575EC001F24D2/?OpenDocument).

2.2.3.1. Search

The internal test in the work group (March 2009) revealed some technical problems and other important deficiencies such as in the display of table content for crop, pest/diseases; attached documents and links did not open; revision of the columns text; improvements of the layout of functional buttons; a clearly visible separation between content of projects and reports; and display the number of existing results.

The external test of the search by an international group of advisors in June 2009 resulted in a very positive response about the systems usability and appearance. The test protocols are available at the ENDURE collaborative workspace (https://workspaces.inra-transfert.fr/QuickPlace/endure/PageLibraryC12574200058EF19.nsf/h_D5C5F9F79D071251C125742000598878/C69A92AEB5C33ABCC12575D7002FE4A5/?OpenDocument). Further additional improvements such as a 'RESET button', in width expandable tables for crops and pest/disease and measure tables will be included in the next updates of the EIC. Other requests addressed additional functions such as a mail to friend, print version, favourite's boxes or last personal searches.

2.2.3.2. Upload

From the internal test in by group members (March 2009) the following improvements were required: improvement of the layout of the upload masks; textual revision of the description and terms used in the upload procedure; addition of sources for the Meta data description of literature and documents and the simplification of the pest/disease tree.

2.3. Conclusion and outlook

The user demands are implemented and reflected in the current 'State of the Art' of the ENDURE Information Centre as described (chapter 2.3.) and can be tested on http://www.land-lab.org:8888/alps/search.xhtml with user: endure and password: demo.

The search mask was improved many times in lay-out and structure; features were implemented in order to make the search more user-friendly.
The search tables for crop and pest/disease contain an auto fill function which provides entries for search based on the first three letters of the word.
The separation of measures in IPM measures and non-chemical methods was abandoned and transferred in a system reflecting the holistic approach and integration of prevention, direct non-chemical and chemical measures.
Empty searches will not appear as the data base only offers the opportunity to search for existing entries; other entries are not displayed though existing in the data base.
The lines displaying the results are expandable and if available the report can be displayed in different languages.
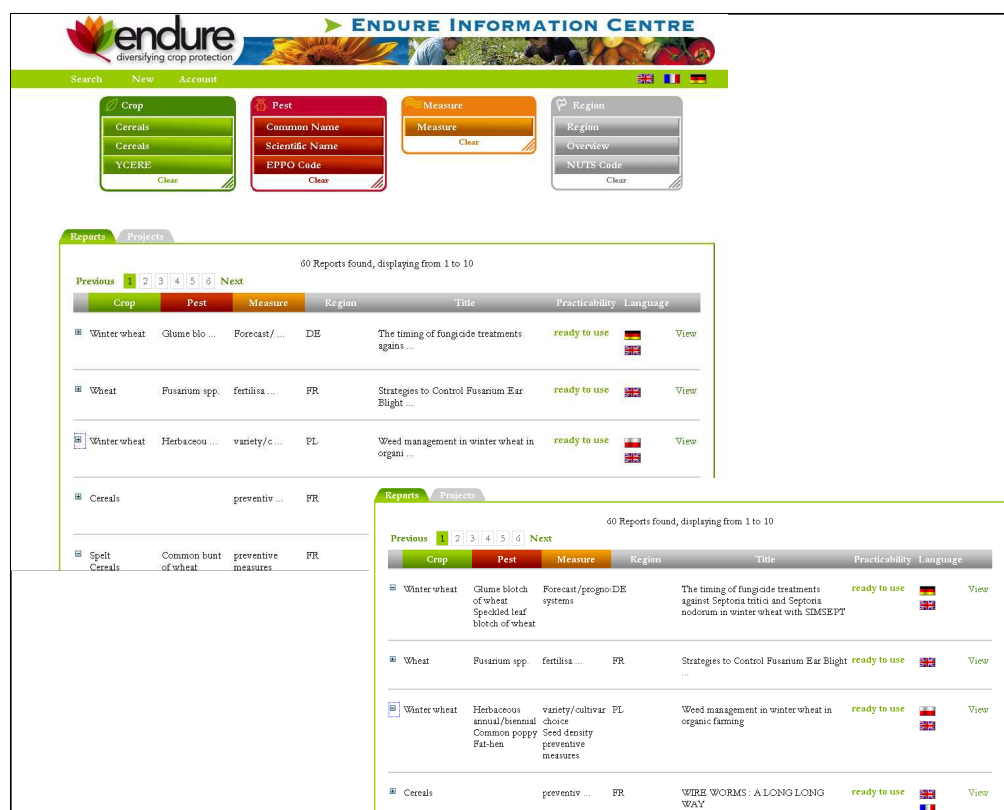
Figure 11: expandable line for results

The implementation of more user friendly features for both the search and the upload procedure is a continuous process and is driven by a permanent dynamics of interaction of the ENDURE group members and external testers who are contacted in regular intervals for testing and giving feedback.

The priorities for implementation in the near future include:

- Google like search for crop, pest/disease and measure
- the revision and translation of crop, pest/disease, measure table in national languages
- Implement permalinks as a preliminary step for referencing of the pages in Google, RSS feed, full text search and links between reports inside the EIC
- Create a popup for downloading documents (general disclaimer)
- Implement the ranking for results (ENDURE information, ready to use information, most recent)
- Simplification of the pest/disease table in the upload

The rights for upload are granted by the administrator of the application based on requests by the so called experts. Experts include all ENDURE members and external researchers requesting to contribute to the filling of the EIC based on their expertise in a certain field of plant protection.

A self explaining stepwise approach guides the expert through the upload procedure. The procedure for upload is described in detail in the EIC Manual available at the ENDURE collaborative workspace.

The upload mask is designed for the upload of expert reviews, document summaries and in the future research reports and entry to the back office (see figure 9 and 10). In the first step of upload these differentiations between expert review and document summary; in the following process the same procedure is applied for uploading the content, referencing literature, documents and links as the sources for the reports.

The EIC is currently open to all members of ENDURE and will go public in October 2009. The public EIC will be available at: http://eic.endure-network.eu/eic/search.xhtml and identical passwords and log in from the ENDURE workspace will be used.

Annex A) External test of Endure Information Centre

Document for test facilitator
Status: final, 3 June 2008

About the test
The test is a mix between individual testing and group discussions. It is important to start with the individual part to prevent dominant persons influencing feedback from others.
Invite 4-6 advisors (in week 24, 25 or 26) with interest in potato and crop protection to join the meeting. You need a room with a computer for each participant and a round table for discussion and a flip-over chart to make notes. Below, the process for the meeting is given (in total 2 hours).

Procedure of the test
1) 0.00-0.25 h. A <u>first conversation</u> between testers and test facilitator (participant of project team). Think about the introduction of participants (if they do not know each other), Introduction to Endure, Endure Information Centre and goals of the test. For this you can make use of text below (*in italic*)
2) 0.25-0.60 h. <u>Individual test</u>: the tester works on a few tasks individually and makes notes about what is going well /not well. The test consists of a first impression and specific search questions.
3) 0.60-0.80 Plenary: <u>Group evaluation</u> of the test with testers and project team
4) 0.80-1.20 Plenary: <u>Group discussion</u> about relevancy, connections and associations between own daily practice and current and future endure IC

Ad1. It is important that you make clear the goals and the state of the art of Endure IC. You can make use of this text:
What is the Endure Information Centre?
The Endure Information Centre (Endure IC) disseminates information on crop protection. It creates an overview of ways sustainable crop protection can be implemented in European agriculture.
Endure IC is a central point of reference for extending recommendations and advice for extension services and advisors concerning all aspects of crop protection.
What kind of information?
Endure IC offers ready to use information about Integrated Pest Management. This means the information is scientifically sound, but also:
- *Tested in field*
- *Practical to adopt*
- *Cost-effective*

And of course aimed to result in less input and less dependency on chemical inputs.
The selection of documents is still limited to integrated crop protection in potato. At the end of 2008 information for weeds, wheat, pommes fruit and tomato will be added. In 2009 new crops will enter Endure IC. After advisors, the target group of Endure IC will be broadened to policy makers.
What are the goals of the test?
- *To get structured feedback from advisors on the content and performance of Endure Information Centre.*
- *To get ideas how Endure Information Centre should develop further and how it can support advisors in their daily work*

Ad. 2 Ask the testers to go to their computer and hand out a printed version of the document: TesterExternaltestEIC.doc.
The tester can make his/hers notes on this paper.

Ad. 3. Ask testers to sit together and start the evaluation.
Collect main remarks on a flip over to get an idea of the most important comments and let testers react on each others' remarks. Don't forget to collect finally all papers.

Ad 4. Start the discussion with the following questions. Try to get more understanding out of the discussion. React with open questions to get more information. Not only if they would use Endure IC but also if it fits to their daily practice of information gathering.

- Do you see an added value of Endure IC for your daily practice?
    - Would you use it?
    - How would you use it?

- How can this added value be improved? (at the short and longer time)

- Is the language a barrier for you to extract the information?

- How should a relation between Endure IC and farm advisors or a farm advisors network be established?

Write down main conclusions on the flip over.

When you close the session you can ask if one of the testers is interested to join the international meeting in Northern France during the potato event in September. There we want to present Endure IC for public. In addition we will set up a small discussion group with European advisors about international information gathering and sharing in relation to Endure IC. (Maybe you can arrange budget for travelling for the advisor?). After the discussion group the advisor is free to visit the event.

After the meeting, make a summary of around 2 pages about the test results and mail it to the participants of SA4.1

Annex B) Test Protocol
External test of Endure Information Centre

Document for test person

Name: ……….
Date test: ………….

Task 1. Find Endure Information Centre
Go to Endure-IC via http://www.endure-network.eu/endure_information_centre

Task 2. Free surfing
Take 5 minutes time to surf freely on Endure-IC. What is your first impression? Write the answers below.
2.1 As positive points I mention:
1)…
2)…

2.2 As points to improve I see:
1)…
2)…

2.3 What are your (additional) comments on design and navigation?
………………………

Task 3. Search documents
- Find a document about *Erwinia* in the *United Kingdom*, read the summary and glance through the complete document.
- Find documents from *France* published in *2006*, read the summary and glance through the complete document.
- Find a document about *Herbicides* and *Potatoes*, read the summary and glance through the complete document[3]
- Make an own search-query.

3.1 Are search results clear?
…..
3.2 Are the one line summaries satisfactory?
My comment:…….

3.3 Give the summaries sufficient information?
My comment:……..

3.4 Are the original documents relevant and useful for you?
My comment:….

Task 4. Other remarks and points for discussion

1)…..
2)…..

Annex C) Test at Cereals

Test protocol

Cereals, the 11th of June 2009

Follow this test-protocol to get familiar with the ENDURE Information Centre (EIC). During the test, please write down all remarks and questions that may arise. This feedback will be used to further develop EIC so that it meets the needs and requirements you have as a European advisor.

The test should take approximately 30 minutes. Following the test, we will have a discussion about EIC, based on your questions and comments.

We will kindly ask you to provide your name, country and organization, so that we are able to contact you after the workshop, if we find your comments or suggestions particularly interesting.

Information about the test person:

Name:	
Organization:	
e-mail:	
Country:	

Part 1: Free surfing

Go to the homepage:	http://www.land-lab.org:8888/alps/search.xhtml
Enter the user-name:	endure
Enter the password:	demo

Take a couple of min. to get familiar with the interface, what is your first impression?

I like:	
You could improve:	
Additional comments:	

Part 2: Specific search
Find a document about machinery for mechanical weed control in France

How did you search? (i.e. which crop, pest/measure/region – combination did you use?)	
How many results did you get from this search?	
Did you find the document without help?	

Read the summary and glance through the complete document

Is this information relevant to you? (if no, why not?)	
Is this TYPE of information relevant to you? (i.e. is the level of practicability in accordance with your expectations etc.?)	
Additional comments?	

Now find a document about control of codling moth from Poland
Read the summary and glance through the complete document

Are you able to read the document? (and not only the summary)	

What is the intention of this document?	
Will you be able to use this document as an advisor? (if no, why not?)	
What do you think about the choices made in relation to language in EIC? (Summary in English and documents in national languages)	

Part 3: After the search

After having searched the database, what are your thoughts about the SEARCH INTERFACE? (e.g. is it easy to use? Is the respond-time ok?)

What is good?	
What could be improved?	

What are your thoughts about the SEARCH RESULTS? (e.g. are the results presented clearly? Are all returned results relevant?)

What is good?	
What could be improved?	

What are your thoughts about the DISPLAY OF THE SUMMARY etc. OF THE DIFFERENT DOCUMENTS? (e.g. is the necessary information available? Is more information needed? Is the display interface useful?)

What is good?	
What could be improved?	

What are your thoughts about the content in the database in general? (If you have time, use some minutes to explore other documents on EIC, before answering)

What is good?	
What could be improved?	

Thank you for your answers. Please return this protocol to the leader of the workshop.