



# ENDURE

European Network for Durable Exploitation of crop protection strategies

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## ***Deliverable DS4.10***

**A document with: procedures and appointments to extract documents from other working groups of Endure; a procedure to update the content of Endure-IC; an idea or solution how to deal with not-free-accessible information; Exchange with Endure-ALPS; an idea how to sustain Endure-IC after the Endure program**

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## Summary

### Objectives

- To describe considerations, procedures, appointments and guidelines that contributed to the realization of ENDURE IC as it is working from the moment of official introduction at the end of 2009.
- To share, with partners in ENDURE, suggestions to strengthen the position of ENDURE IC and make it sustainable for the period after ENDURE.

### Rationale

The development of ENDURE IC can be seen as a prototyping approach. Initial ideas were worked out, tested and discussed by partners in SA4.1 and by representatives of the target group of advisors. Based on results of discussions and feedback an improved idea for a new version was worked out.

It is a complex process with different persons, countries and expertises and therefore important to describe and to share backgrounds and results of considerations and discussions as a base for a sustainable application.

The different topics of this deliverable are described by the project partners who are responsible for that specific element. Considerations, procedures and recommendations were discussed during meetings of the SA4.1 partners in: Kleinmachnow (D) at 28 and 29 January 2009, Horsens (DK) at 25 and 26 March 2009 and Wageningen (NL) at 20 October 2009.

The document contains the description of the organisation of the content of ENDURE IC including procedures for collection, validation and uploading of documents inside and outside Endure. Special attention is paid to the use and control of keywords and about the discussion to collect free or not-free accessible information. To stimulate the position of ENDURE IC the ENDURE Network of Advisors is started up. Already 50 advisors of 13 countries signed up. ENDURE IC has come a long way in establishing itself as a reference point for IPM and crop protection knowledge. In the remaining part of ENDURE however, ENDURE IC has three main focus points, all treated in this deliverable. These focus points are:

- the further development of the interface and backend of ENDURE IC;
- the increase of the amount of content appropriate for a point of reference about sustainable crop protection;
- the awareness of stakeholders like advisors, teachers and policymakers to stimulate the impact of research on sustainable crop protection by an improved use and usability of ENDURE IC.

### Teams involved

Partners in SA4.1 are JKI, DAAS, AU, ACTA, IHAR, UdL, PRI, Rres and PPO. All partners contributed to this deliverable by descriptions, tests and/or participating in discussions.

### Geographical areas covered

At the moment ENDURE IC contains documents of all participating countries in SA4.1: Germany, Denmark, France, Poland, Spain, United Kingdom and The Netherlands. In the 4th JPA efforts will be put on the collection and description of documents of other European countries too.

Advisors of 13 countries signed up for the Endure Network of Advisors. Presently the majority is from Denmark, United Kingdom and Netherlands. For the 4th JPA the challenge is to get more advisors from other countries involved.

## 1. Introduction

Development of ENDURE IC is not only a matter of smart ICT solutions. It has also to do with:

- development of a European network for collection and validation of documents to guarantee the quality and quantity of the content, and
- activities to promote participation of advisors and other stakeholders to increase the potential impact of ENDURE IC on current and future crop protection strategies.

This deliverable contains information about considerations, procedures, appointments and guidelines that contributed to the realization of ENDURE IC as it is working from the moment of official introduction at the end of 2009.

Besides a description of the current situation, suggestions are worked out by the project partners in WP SA4.1 for the 4<sup>th</sup> JPA of ENDURE and for the period after ENDURE to strengthen the position of ENDURE IC and make it sustainable.

This document is the description of Deliverable DS4.10 named: *‘A document with: procedures and appointments to extract documents from other working groups of Endure; a procedure to update the content of Endure-IC; an idea or solution how to deal with not-free-accessible information; Exchange with Endure-ALPS; an idea how to sustain Endure-IC after the Endure program.’*

The name of this deliverable originates from the 2<sup>nd</sup> JPA of ENDURE. In that period two applications were under construction in ENDURE. The application ENDURE-ALPS focussed about non chemical alternatives and had as target group researchers while ENDURE Information Centre focussed about IPM with target group advisors. From the start of the 3<sup>rd</sup> JPA it was decided to merge the systems. As a side effect the name of this deliverable does not fit to the actual situation. Exchange with Endure-ALPS is not opportune anymore.

## 2. Organisation of content

### 2.1. Procedures for collection, validation and uploading of documents

The aim of the ENDURE IC is to present a European quality selection of integrated and non-chemical control measures in plant protection. The application will enable users to easily search for information primarily in English which usually is only available in national languages or gives information about very regional practices. Knowledge for this quality selection is generated from the various national sources as well as from knowledge generated inside the ENDURE Network. In the initial phase of the collection especially members from ENDURE are addressed to upload their knowledge and the outcomes of their research activities into the ENDURE IC and build the basis for a recherche in the system. The ambition is that this will eventually attract external experts who will be able to upload their knowledge upon registration.

The ENDURE IC Manual is developed to ensure a system conform upload, a harmonised presentation of content and user guidance. The manual describes in detail the intention and aim of the ENDURE IC, explains the selection criteria for the content, defines the different types of content, clearly describes the structure and the format of abstracts and provides guidance for searching and uploading information. The following chapters will give a short overview about the general procedures for the identification of documents, their collection, abstract types and their structure, the validation process and the upload procedures.

### 2.1.1. The identification and collection of documents

The goal of the ENDURE IC is to provide a high quality selection of sources and documents which have the potential to be shared across Europe. The selected sources provide information about plant protection practices with an added value going beyond the level of good plant protection or farming practice.

Sources can be research reports, PhD thesis, journal and magazine articles, “grey literature” such as trial reports and other documents such as websites, leaflets, reports, videos, articles, newsletters, books etc. This also includes review documents and information about national projects contributing to IPM and the promotion of non-chemical alternatives.

### 2.1.2. The abstracts

The abstracts (in English) of validated documents and sources about integrated crop protection are the unique point of ENDURE IC. This will be the main source of information for the user. Consequently methods and important results are pointed out in the abstracts which are uploaded to the data base.

The ENDURE IC provides two kinds of abstracts:

- **Document summaries** with validated information based on single documents such as websites, leaflets, reports, videos, articles, newsletters, books etc.
- **Expert reviews** comprising extracted and validated information from a number of sources summarised by an expert in a particular field.

In order to ensure content quality and to present a clear structure to the user the following structure for the abstracts or summaries in the ENDURE IC is exclusively implemented: English title, one line summary, English description and evaluation of the practicability of the measure in the country/region of origin.

The aim is to present a quality selection to the user of the ENDURE IC and enable them to easily search for information which usually is only available in national languages or gives information about regional practices. Such practices could inherit the potential for adoption in different regions or reflect very valuable potential for disease or pest control. Such national information is summarized in English and validated by experts in order to spread the information across Europe.

All information is scientifically sound and the different levels of their practicability are indicated.

The evaluation of the practicability of measures enables the end user to assess the value of the measure for potential adoption in different regions or adaptations.

**Ready to use** information means: The measures are tested in the field, practical to adopt and cost-effective. Ready to use information is for extension services and advisors. Other measures (named **experimental**) which have the potential to provide a solution for a given problem but cannot be recommended as best practice yet, are tested on experimental fields, an adoption is possible or is cost efficient only with subsidies or under special conditions. The target groups of this information are researchers and advisors who are interested in developing those methods, testing or adapting them.

### 2.1.3. The validation procedure

The ENDURE IC system requires a user registration for reading and uploading access. The reading access will be granted to the public.

The access for upload is currently restricted to ENDURE members and selected experts. Those persons stand with their names and expertise in a certain subject in plant protection for the quality control of the uploaded content. Additionally each member of the SA4.1 group is responsible for the regular review of national documents and guiding/supporting uploaders concerning the content of the ENDURE IC.

#### 2.1.4. The upload to the ENDURE IC

The upload procedure is described in the ENDURE IC Manual which explains the intentions and background of the selection of information. The upload procedure, the required steps and functions are described there in detail.

The ENDURE IC Manual is available in full version on [https://workspaces.inra-transfert.fr/QuickPlace/endure/PageLibraryC12574200058EF19.nsf/h\\_1663B264B5913AEDC1257420005A0A9E/AA1022E0D8ADE79FC125767000336929/?OpenDocument](https://workspaces.inra-transfert.fr/QuickPlace/endure/PageLibraryC12574200058EF19.nsf/h_1663B264B5913AEDC1257420005A0A9E/AA1022E0D8ADE79FC125767000336929/?OpenDocument).

#### 2.1.5. Outlook after Endure

The main functionalities of the ENDURE IC are implemented and provide a sufficient handling of the search and upload mechanism. The last step which will ensure the management of the ENDURE IC after the funding period is the development of the administrative backend. The administrative backend allows the management of the application, user, keyword and content management.

It is suggested that validation of potential documents, whether they fits to the selection criteria of ENURE IC, will be done by (or organised by) the national contact persons ENDURE IC.

### 2.2. Content from other Endure activities

It is expected that the activities in the Endure groups will generate valuable information that can be used in ENDURE IC. The different Endure groups (CS's: Potato, Wheat, Integrated Weed Management, Tomato, Pome fruit, Maize, Field Vegetables. New SCS: Orchard, Euro-Wheat, Maize, winter crop rotation, Grape wine. RA and IA groups: DSS (IA 2.4), RA2.2 Innovative technologies weed trait db, RA4. SA4.5 has been contacted for documents or links about policy issues for advisors (e.g. EU pesticide legislation; National Action Plans). The type of information for ENDURE IC from Endure should be ready-to use information for advisors:

- relevant reports from Endure groups
- Endure leaflets
- Useful IPM articles/publications/links etc. that covers the key elements of the different working groups with interest to the European advisor
- Summary (review paper) of IPM or non-chemical methods from the group
- List of relevant projects (old and new)

Contact persons from the SA4.1 group have been appointed to help the groups by selecting and uploading documents.

To make the process more demand driven it is suggested that the advisors in ENA will be contacted in the coming 4th JPA and asked for priorities, important information types etc. This information can then be used to contact the Endure groups for more selected and targeted information. This could create new activities in the groups and to make sure that resources are available, it is suggested that the Endure groups in the coming 4th JPA allocate a part of their budget for dissemination.

### 2.3. Use and control of keywords

To categorize the uploaded content, the ENDURE IC uses keywords mapping the reports contained. The ENDURE IC includes three different kinds of keywords:

- the organisms and the different levels classifying the taxonomical hierarchy of these organisms. Thereby all organism/taxons are divided into crops and pest,
- the topics used to classify the type of measure a report is actually describing

- the region the method originates from.

All keywords are organized hierarchically and consist of an identifier and the scientific term used to represent the keyword. Furthermore most of the keywords also include language-specific translations for the multilingual presentation.

### 2.3.1. Crops and pests

Currently the crops and pests entries in the ENDURE IC are provided by the EPPO database. The EPPO online database provides preferred scientific names, synonyms, common names for several languages; codes and taxonomic relationships of organisms important in agriculture and crop protection. The EPPO database provides comprehensive information regarding taxonomical hierarchy as well as language-specific translations. For the use in the ENDURE IC a limitation is that EPPO does not include a separation of data into crop and pest. Therefore EPPO database is used as data provider but a manual division into crop and pest is required.

The ENDURE IC is working with scientific names for crops and pests. It also provides most organisms' common names in the different languages on the web interface to improve acceptance and simplify the uploading procedure. Working with the language-specific terms revealed that translations for some common organism were missing, and some translations suggested by EPPO were uncommon. Therefore the members of SA4.1 adapted and completed the list of translations for the most important crops and pests. In the future additional validation and extension of language-specific translations is required. It is planned to create the administrative backend allowing a revision and extension of crops and pests and their language-specific translations via a user friendly interface.

### 2.3.2. Topics

Since crops and pests only describe the scope of a report, the topics are used to identify the concrete measure or method a report is actually explaining. The SA4.1 group created a complex catalogue of hierarchically organized topics. That topic tree is already translated in several languages and included into the application. The application basically supports the extension of the topic tree, which currently requires technical knowledge and is restricted to the administrator. For improvement it is planned to create a user friendly interface which is part of the administrative backend also required for crops and pests.

### 2.3.3. Regions

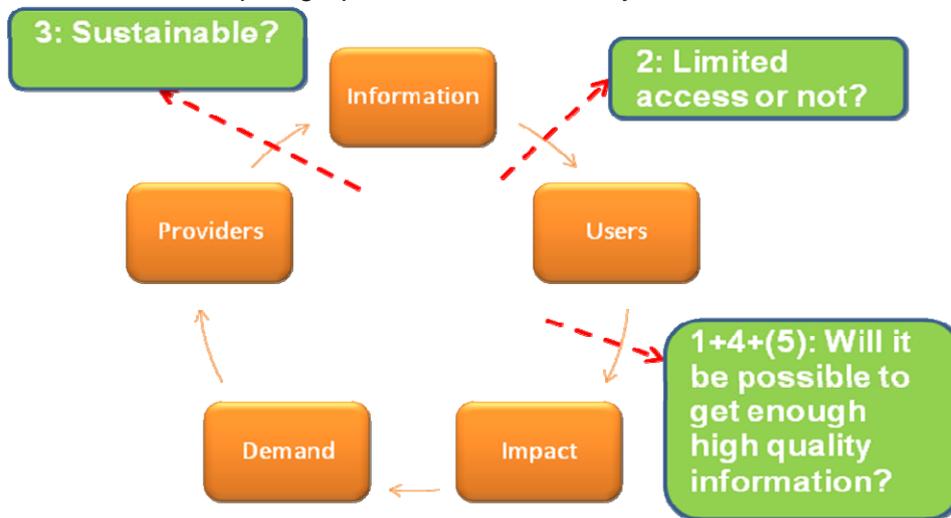
To create a regional reference for reports, the ENDURE IC provides a list of all European countries. Since that list will probably not change, the administrative effort for regions can be neglected

## 2.4. Not free accessible information

The challenge with supplying a database like ENDURE IC is that a lot of very valuable information (being basic knowledge or new and innovative findings) is not available to the general public. This may be due to the fact that the information is produced by private organisations or others, who has an interest in keeping information restricted to a limited amount of people. In order to retrieve at least some of this information for display on ENDURE IC, it is important that the information suppliers see an advantage of displaying the information here. Until ENDURE IC becomes recognised as a place with information of high value, it is up to the SA4.1 partners to convince the information suppliers.

In order to get an overview of the extent of the problem with non-free information, each partner in SA4.1 was asked to complete a questionnaire concerning the collection of documents and the relationship with the information providers. Special attention was given to the agreements made for the potato documents, as these agreements may be the way to proceed with other subjects in the future.

The information obtained from the questionnaire has led to the identification of a number of possible solutions. It is however important to realize, that the problem is not static. As the database becomes more established and more “interesting” for the suppliers and users of IPM-related information, the amount of available free information may increase, simply due to the fact that the database is recognized as a place with information of a high quality. Until this happens, agreements with suppliers and/or users have to be made individually. In the following a schematic presentation of the various solutions is given, along with the pros and cons identified. In paragraphs 2.4.1 till 2.4.5 they are elaborated further.



**Figure 1 Information access dilemma ENDURE IC**

The sustainability of ENDURE IC is described with the diagram in figure 1. If the ENDURE IC holds relevant information, it will attract users. When the information reaches the users, it will hopefully have an impact. If the information is useful, it will create a demand for more information from the providers and the circle is complete. The green boxes and red arrows represent on which step the suggested solutions will have an impact, and which problems may be created. 1: Only free information, 2. User-paid database, 3. Information paid by ENDURE, 4. Only ENDURE information, 5 ENDURE IC as “link-collector”. In paragraphs 2.4.1 till 2.4.5 these potential solutions are elaborated further.

### 2.4.1. Only free information on the database

If the database is filled with freely available information only, there will be no problem with accessibility. Freely available information not only includes information available on the internet, in partner organizations etc. but also information for which special agreements can be made. This option is the one that requires the most of the SA4.1 group, as they have to contact each supplier of information and maintain the contact until the database becomes self-sustaining. This option will also require some sort of funding beyond the ENDURE project to maintain the database, validate documents and organize a group of people to run the database.

The main challenge of this option is to locate the information meeting the requirements set up by the SA4.1 group. If the suppliers of information should supply the latest news, without receiving any payment in return, it is important that they see an added value of doing so. This could e.g. be related to the marketing value. If the suppliers do not agree to include this kind of information, the result could be a decrease in the quality of the available material and consequently a gradual decline of the use and/or impact of ENDURE IC.

Some of the partners in SA4.1 indicate in the questionnaire, that agreements have been made with suppliers, concerning information of a certain age. In France e.g. an agreement was made with ARVALIS, that information more than 6 month old may be shown free of

charge on the ENDURE IC. In Germany the same is the case for information from JKI authors.

#### **2.4.2. User-paid database**

If the user should pay for a license to the database or pay per document of relevance, it is essential that the information available is the latest state of the art knowledge. The advantage of this option is that there will be some funding available to buy access to information (e.g. books, flyers, small programs relevant for the extension etc.) and to maintain the database beyond the life of ENDURE project. This will result in more information of a higher quality.

The main problem with this option is the contact to the end-users. There is a potential risk of not reaching the group of advisors who need the information (e.g. advisors without internal knowledge generating systems). There is of course also the aspect of handling the payment etc, the description of this however is beyond the objective of this deliverable. In several European countries, representatives of agrochemical companies or cooperatives are the main “advisers” when it comes to plant protection. If there is no tradition of paying for information like for any other products, it may be difficult to implement this model.

In Denmark, the Danish Agricultural Advisory Service (DAAS) runs an extensive internet-based information service. Subscription fees contribute in this case to cover the costs of maintenance etc. The French extension service have supplied some free documents to ENDURE IC, but also some where the user has to pay a few €s to access the document.

#### **2.4.3. ENDURE allocates funding to buy information**

The idea behind this option is that ENDURE allocates money to buy central documents for the ENDURE IC, while the majority of the information still comes from free documents. By doing so, the overall quality of the information will be increased, attracting more users. Over time, the ENDURE funding should be decreased and eventually disappear completely, when the database becomes self-sustaining.

The problems with ENDURE paying for information first of all includes the potential risk of buying the “wrong” information and buying it too expensive. It is therefore important that the group selecting the information is expert based and objective in their selection. This option will also require work for the group in relation to collection of the documents, i.e. making agreements, establishing contact to new information providers etc. Furthermore, the limited resources of ENDURE makes it unlikely that the ENDURE management will allocate funding for this purpose.

#### **2.4.4. Only ENDURE information on ENDURE IC**

A lot of the output from the ENDURE network meets at least some the criteria set up by the SA4.1 group. However, until now it has been difficult to ensure that the output produced can be used and/or are found valuable by the advisers in practice. The information could however form the basis of the database until the end of the network-period. By doing so, the database will have 1 year to establish itself and create the identity needed for the future. After the network-period, the database should be opened up to other documents of relevance, and a group of experts should be established to validate and maintain the information in the database.

With this option, the main challenge for the ENDURE partners is to produce enough relevant output to sustain the database. An idea could therefore be, to use the network of ENDURE to locate information in the partner organizations. This would reduce the workload of the group validating the information, as the suppliers are all involved in the network, and as such are familiar with the requirements of the ENDURE IC. It will also be easier to make agreements

with partners already involved in ENDURE. The challenge to this model is to create win-win situations for the researchers involved, as their success is normally not measured in terms of success as advisers.

#### **2.4.5. ENDURE IC functions only as a distributor of links**

In its simplest form, the ENDURE IC could work as a distributor of links of relevance to the end-user. There are some advantages of choosing this option. Firstly there will be no need of a large centralized server, containing all the information. This would reduce the workload of the administrator of the database, who only has to monitor the links and make sure that the information is still available on the parent homepage. It will also mean, that the information is always updated, as this is performed by the supplier and not the group behind ENDURE IC. This helps increasing the quality of the information. It will also be easier to make agreements with suppliers, as the user will be directed to their homepage, with the potential benefits to marketing etc. The group behind ENDURE IC however still has to make English abstracts etc, to be shown on the interface of the database. Otherwise, the language barriers will make most of the links useless in practice.

#### **2.4.6. Outlook after Endure**

There are pros and cons of all options mentioned here. A decision therefore has to be made, so the work with ENDURE IC can be focused towards the end-goal; a self-sustaining database with ready to use information concerning IPM-issues.

At the SA4.1 workshop in Denmark in March 2009, the various possibilities were discussed, and it was concluded that the basic information on ENDURE IC should be composed of freely available information and ENDURE outputs. Freely available information does in this context also include all information for which there can be an agreement made between the supplier of information and ENDURE IC. With ENDURE output being specifically mentioned here, once again emphasizes the need for sub-activities to co-operate with the SA4.1 group in terms of supplying additional knowledge.

There will however also be situations where relevant information is not freely available (books, newsletters etc.). Here the user will be given an English abstract (maybe also in national languages) and an opportunity to pay for access to the information. It is however important to realize, that this should only be a minor part of the ENDURE IC.

## **3. Positioning ENDURE IC**

### **3.1. Current situation**

A former version of ENDURE IC was tested in 2008 by advisors during national and international test sessions in the participating countries. In 2009 the ENDURE IC has been presented to advisers at the following occasions:

- The Cereals 2009 event in the United Kingdom (June 2009)
- small meetings with advisors in Germany
- meeting with young advisers in Denmark,
- test sessions in France and Spain in December 2009
- a test session and demonstration at crop protection field day in the Netherlands (June 2009)

Furthermore, it is currently being planned that the ENDURE IC will be presented to a large number of Danish farmers, advisers, researchers and policy makers at the annual Plant Production Congress in Herning in January 2010 and it will be presented and demonstrated

at the annual conference of the Association of Independent Crop Consultants (AICC) in the UK in January 2010..

The feedback received from advisers clearly shows that there is a need for getting access to the kind of information on IPM strategies that is included in the ENDURE IC. It has also been clear that the database is in urgent need to be extended with more crops and many more documents covering a larger geographical area as well as a more thorough coverage of the weeds, pests and diseases occurring in Europe.

It is also clear that language barriers will remain important obstacles for the use of the ENDURE IC by farmers. This issue must be kept in mind for developments post ENDURE, but it is not realistic to allocate resources for the necessary translations within the life span of ENDURE. At present, the ENDURE IC is mostly directed towards advisers, and it is expected that the English summaries and keywords will enable advisers to extract the crucial information from the documents. Besides this the ENA will offer possibilities to contact or start up discussion about it and tools for a rough electronic translation are available at internet.

For the 4<sup>th</sup> JPA of endure it is recommended that in the remaining part of ENDURE, emphasis is put on enlarging the document base of the ENDURE IC rather than making new technological changes. It will be crucial to mobilize the system case studies and other activities of ENDURE to ensure that this will happen.

To improve the visibility of the system for the 4<sup>th</sup> JPA the following actions are suggested:

- contacts with owners of popular national sites about crop protection resulting in RSSfeeds at and/or links to ENDURE IC;
- demonstrations and publicity in magazines of participating countries.

## 3.2. Future Options

To stimulate impact of ENDURE IC for a sustainable crop protection, special attention has to be paid to the target groups advisers, trainers & education and policymakers.

### 3.2.1. Advisers: role of ENA, needed activities/services

In the second part of 2009, the ENDURE Network of Advisers (ENA) has been initiated by sending an introductory letter to a large number of advisers collected by the members of the SA4-group of ENDURE.

The advisers are encouraged to register for ENA by entering their contact details along with descriptions of their main areas of interest in a database hosted by the DAAS. This will enable the creation of a directory of advisers with interests in different areas of crop protection.

Currently (27 November 2009), 50 advisers from 13 countries have signed up, see table 1. It is encouraging that we have already succeeded to attract advisers from countries not involved in ENDURE. However, it is also clear, that presently there is a large Northern European bias in the advisers who have registered and that more work is needed to get in touch with more advisers, particularly in the Eastern European countries, but also in large Central and Southern European countries like Germany, France, Spain and Italy, in order to reach a “critical mass” regarding numbers of advisers.

**Table 1: Number and country of origin of advisers signed up for the Endure Network of Advisers per 27 November 2009**

Country	Advisers
Belgium	2
Denmark	13
Finland	2
France	2
Germany	1
Ireland	1
New Zealand	1
Norway	1
Romania	1
Spain	1
Sweden	5
The Netherlands	10
United Kingdom	10

The challenges of getting advisers to register should be viewed in the light that there has not been a tradition for communication and knowledge exchange among advisers in Europe, and that advisory systems differ greatly among countries. However, by translating the introductory and invitation letters to local languages, and encouraging advisers to forward the letters to colleagues, it is still expected that we will reach a sufficient number of advisers.

It is considered important for the success of the ENA that the advisers will receive meaningful information from ENDURE in the first place. As soon as the ENDURE IC has gone public, it is important that the members of ENA get informed about it and that they are encouraged to test it and provide feedback.

Secondly, it is important that the different ENDURE activities make use of the ENA where relevant. It could be used to get reviewers for reports from the systems case studies, test of decision support systems, learning materials, etc. By channelling information to the advisers, they will experience that the ENA is active, and they will be encouraged to ask colleagues to sign up.

It will also be relevant to use the ENA as a source of key advisers that could be invited to meetings aimed at initiating new IPM-related projects after the life of ENDURE.

The end goal of the ENA is of course to make it a self-sustaining structure. However, this is considered to be an ambitious goal within the life-span of ENDURE. Advisory services are often characterized by competition, at least within countries, and sometimes also across EU member states, and therefore active sharing of information should be considered a long-term goal.

In order to sustain the ENA post ENDURE, continued involvement from members of the group behind the ENDURE IC is needed.

### 3.2.2. Education & training

Concerning education, the ENDURE IC will be an interesting tool to get European information about the evolution of sustainable crop protection.

Firstly, it has been determined in SA 1.1, that trainers need a lot of information to be able to design IPM-training session presentations. The content of the ENDURE IC (validated documents, ready to use) can be used for this material to train farmers and students for example for spraying licenses. The tool itself can be used to train instructors and advisors.

In SA1.1 an IPM training guide will be developed and this guide will also be content of ENDURE IC

This IPM training guide is especially valuable for teachers and trainers and will contain different documents:

- Topics introduction;
- sheets;
- Case studies.

These documents will allow the trainers to design their own presentations about IPM arguments, tools, training methodologies and small courses.

To make the existence of these tools broadly known, agriculture schools and organizations making pest management courses and spraying license trainings will be identified. The collection of information for this data base is a part of the SA 1.1 job, but will be coordinated together with SA4.1 and ENA.

### **3.2.3. Policy and national legislation**

Concerning policy and legislation, the ENDURE IC will serve as a tool for information support to all stakeholders. Policy and decision makers will make use of the tool searching for possible options and alternatives for a given problem in plant protection.

Additionally the ENDURE IC will provide to policy and decision makers as well as to extension services and advisers national legal documents such as national legal acts for plant protection, national IPM guidelines for selected crops and information about European legislation concerning IPM and plant protection.

The ENDURE public website hosts a page especially dedicated to scientific support to policy makers it will be interlinked with the ENDURE IC and selected content will be searchable via the ENDURE IC.

## **4. Recommendations**

The ENDURE Information Centre has come a long way in establishing itself as a reference point for IPM and crop protection knowledge. In the remaining part of ENDURE however, ENDURE IC has three main focus points, all treated in this deliverable. These focus points are 1) the further development of the interface and backend of ENDURE IC, 2) the content and 3) the awareness of stakeholders.

### **Development of interface and backend**

The main functionalities of the ENDURE IC are implemented and provide a sufficient handling of the search and upload mechanism. But a further improvement of the interface and development of the backend of ENDURE IC is needed. This means:

- Organization of a helpdesk for problems with search and uploading documents;
- Smoothing upload procedure based on continuous experiences and feedback of users;
- Continuous control, development and management of existing keywords; procedure to add new keywords with emphasis on translations;
- Endurance of the management of the ENDURE IC after the funding period including content management, procedures and keywords.

### **Content for a point of reference**

To reach the ambition as point of reference more efforts has to be put on the collection, description and uploading of relevant material. It is agreed that the majority of the information on ENDURE IC should be freely available and meet the requirements of SA4.1. As far as possible, the information and outputs produced inside ENDURE should be disseminated through ENDURE IC. Besides this, the SA4.1 partners commit themselves to provide a number of additional information. The SA4.1 group is also responsible for making the abstracts etc. of the documents before upload. As relevant information is the key to success

for a database like ENDURE IC, it is important that a larger part of the European countries are invited to upload to the ENDURE IC.

A certain quantity of minimal 1000 till 2000 documents is needed to attract different groups of crop protection advisors of 10-15 different countries. But it is important that the selection of documents is of high quality. When the information has really impact on the crop protection behaviour and advice of users, than information suppliers will see the advantage of displaying the information on the application.

It is suggested that validation of potential documents, whether they fits to the selection criteria of ENURE IC, will be organised by the national contact persons of ENDURE IC. The quality control of the uploaded documents should be restricted to selected experts who stand with their names and expertise for a certain subject in plant protection.

### **Awareness of stakeholders for impact on crop protection**

The third task of ENDURE IC is to increase the awareness among the different stakeholders in European agriculture. To stimulate impact of ENDURE IC for a sustainable crop protection, special attention has to be paid to the target groups advisors, trainers & education and policymakers. Activities to stimulate the visibility of ENDURE IC (like RSS feeds and publicity) are planned in the 4rth JPA.

For successful dissemination of IPM measures it is recommended to stimulate involvement and commitment of advisors with the application. For this the further elaboration of the ENDURE Network of Advisers is a key factor. What is important in this aspect is that advisors are encouraged to sign up for the ENA and that they see an added value of being members and sharing information and contacts. A large number of advisors in ENA will provide a solid foundation for testing the practicability of the information available on ENDURE IC. Besides advisors, ENDURE IC should also establish contact with teachers and trainers involved in IPM learning. In the 4rth JPA this will be started up in corporation with SA1.1.