



ENDURE achievements: an overview of the project and the Conference program

Pierre RICCI
INRA
Coordinator of ENDURE

FOOD
QUALITY
AND
SAFETY



Integrated Pest Management in Europe

Paris, November 2010





ENDURE's initial concepts (2004)

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QUALITY
AND
SAFETY



Integrated Pest Management in Europe

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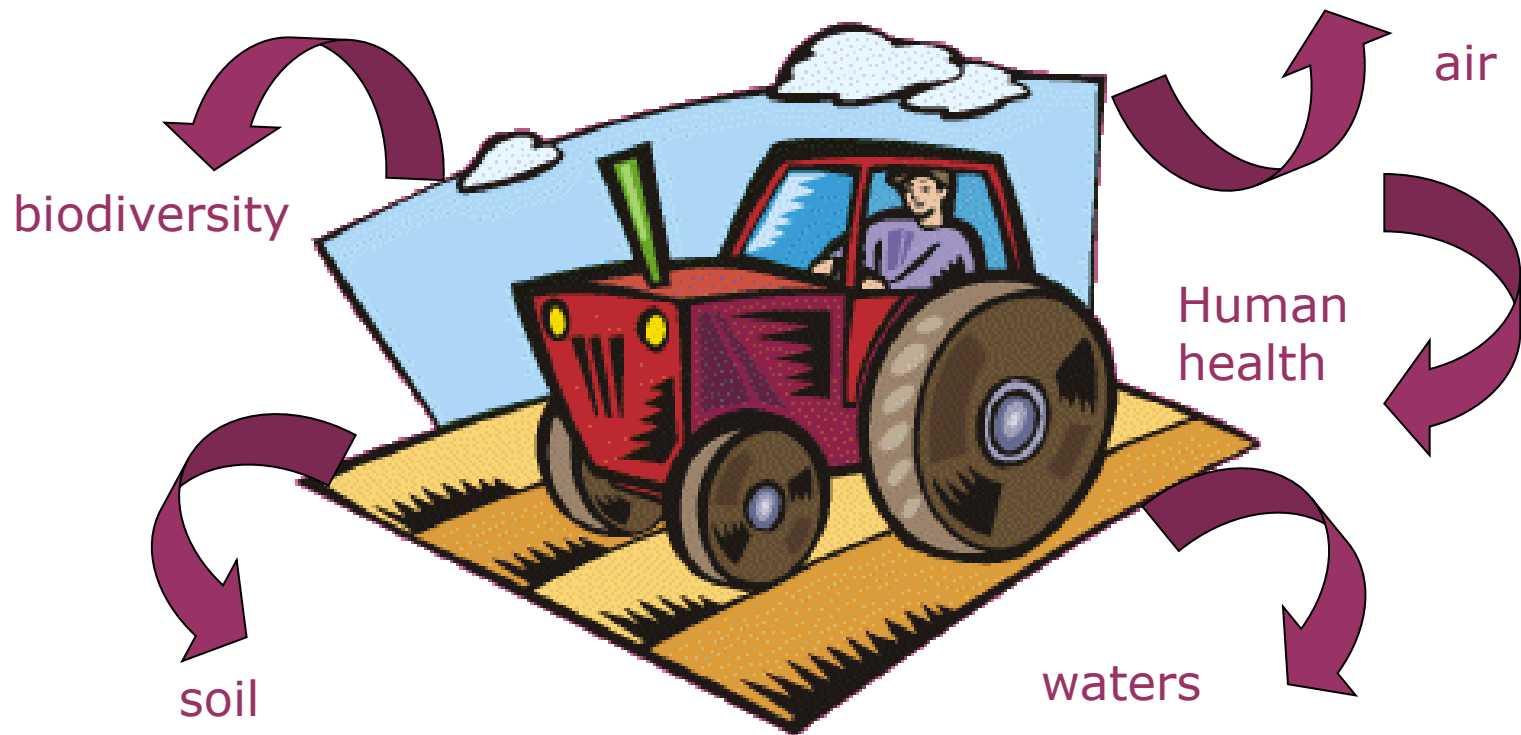


ENDURE's initial concepts (2004)

Development of research
on detrimental impacts
of crop production / protection

Production process

Crop protection



ENDURE's initial concepts (2004)

Time to develop a similar effort
on reconsidering
crop protection

Production process

Crop protection



Diversifying
crop protection

- Needs
 - Research
 - Knowledge
 - innovation



ENDURE's initial concepts (2004)



**Science-driven
research**

- Needs
 - Research
 - Knowledge
 - innovation



ENDURE's initial concepts (2004)



Science-driven
research

- Needs
 - Research
 - Knowledge
 - innovation

Innovation-driven
research



ENDURE's initial concepts (2004)

- This research is segmented by countries



ENDURE's initial concepts (2004)

- This research is segmented by countries



ENDURE's initial concepts (2004)

- This research is segmented by countries
- ... and by disciplines

Systems
approach



ENDURE's initial concepts (2004)

Defragmentation
NoE



Networking: first ENDURE achievement

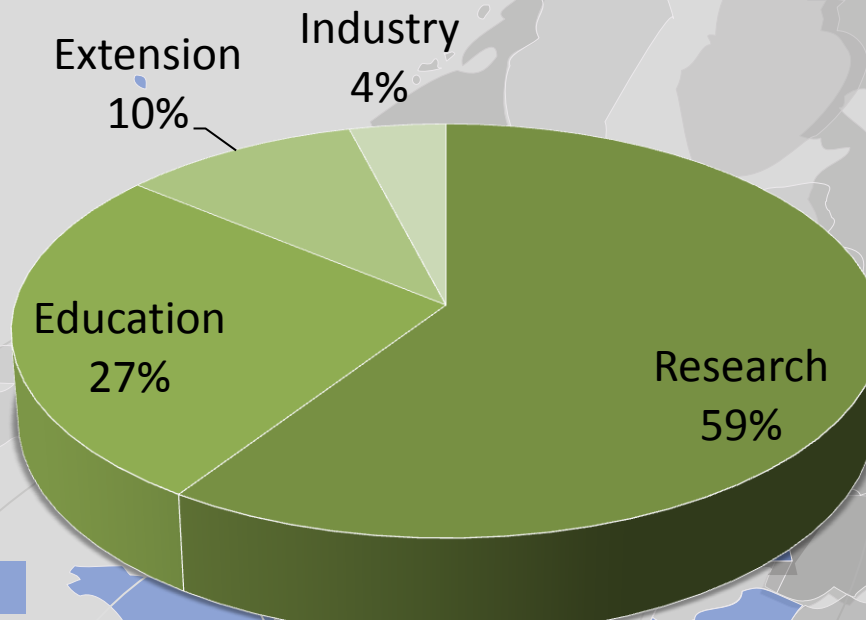
Networking: first ENDURE achievement

10 countries
16 institutions



Networking: first ENDURE achievement

Up to 470 participants



- Research
- Education
- Extension
- Industry

IBMA

INRA
IT

ACTA

CIRAD

Agroscope

SZIE

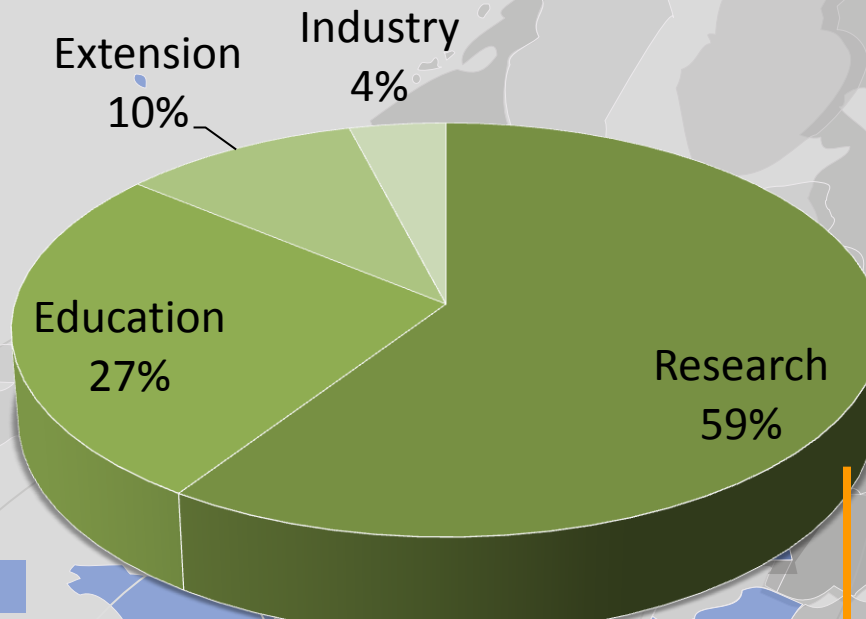
CNR

SSUP

UdL

Networking: first ENDURE achievement

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- Research
- Education
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IBMA

INRA

IT

ACTA

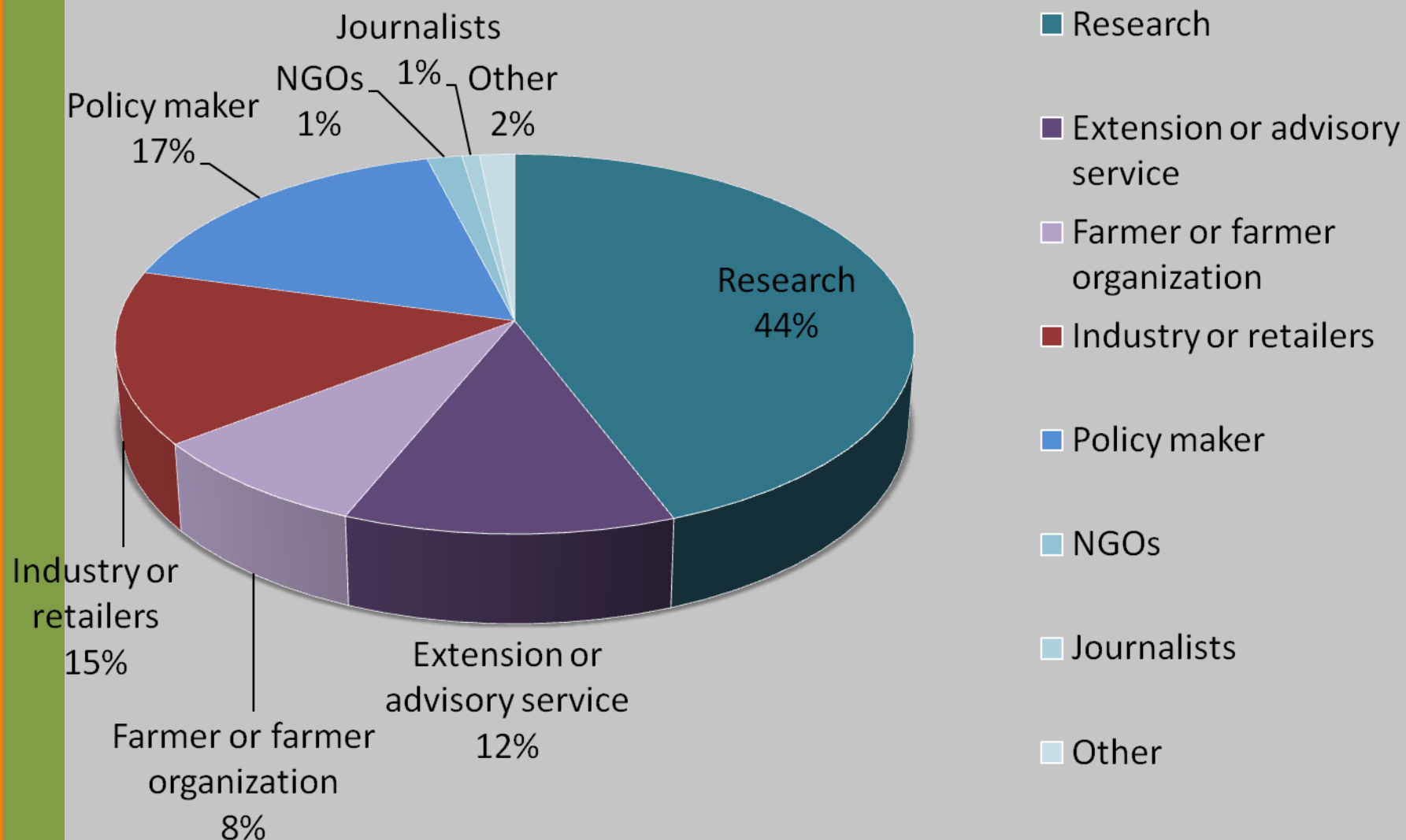
CIRAD

UdL

Entomologists
Pathologists
Weed scientists
Agronomists
Geneticists
Ecologists
Economists
Social scientists

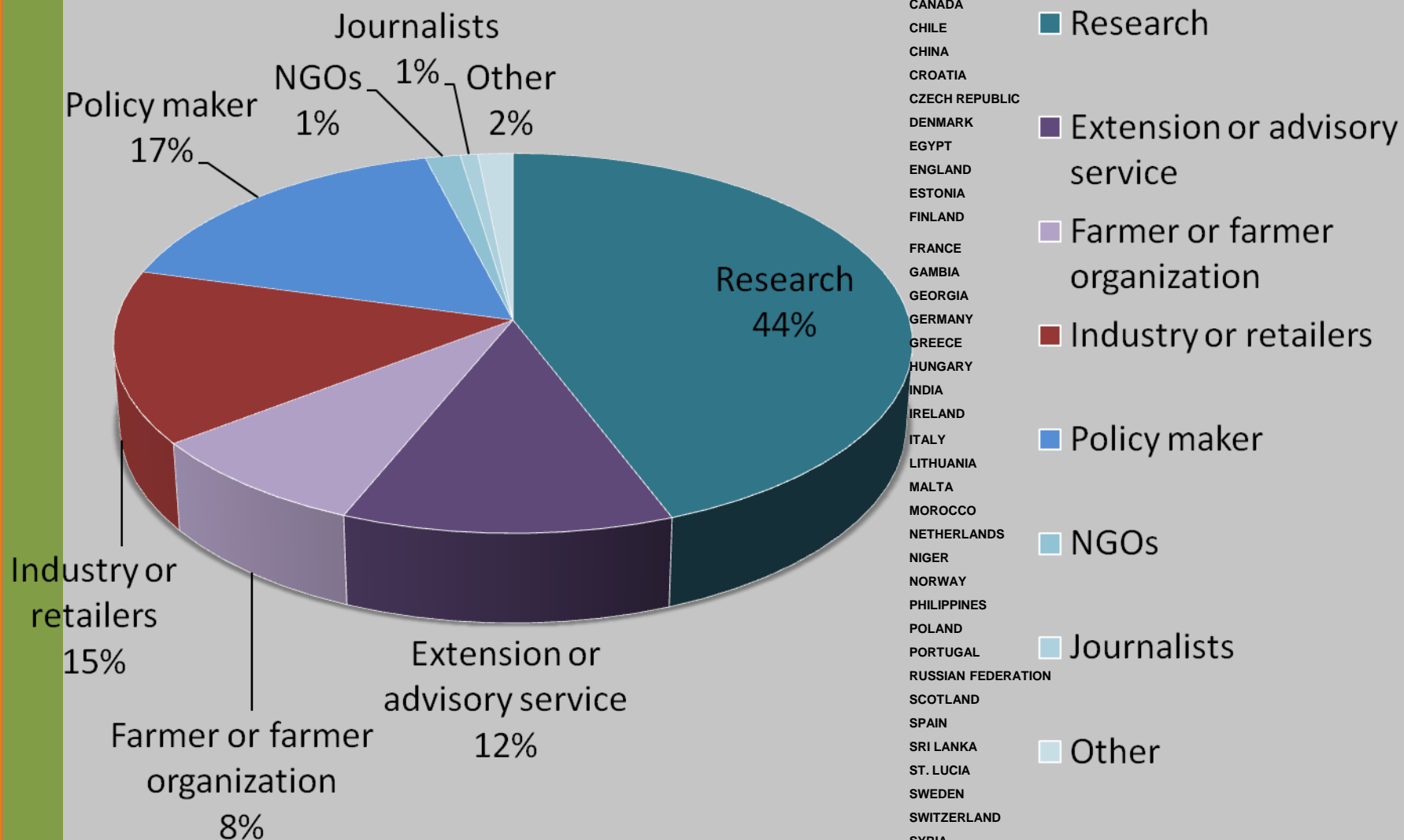
Audience of the conference

251 delegates



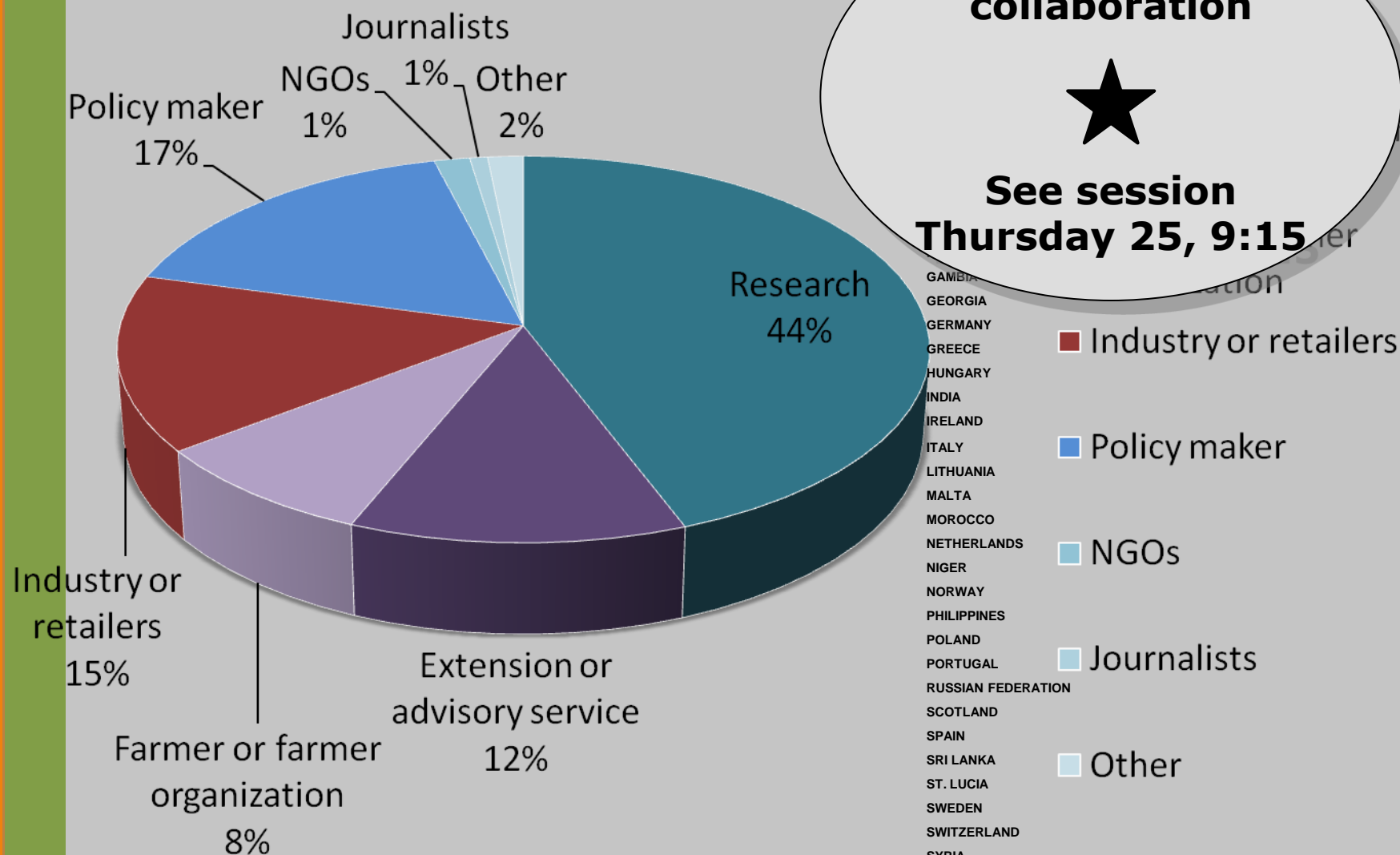
Audience of the conference

251 delegates from 48 countries



Audience of the conference

251 delegates from 48 countries



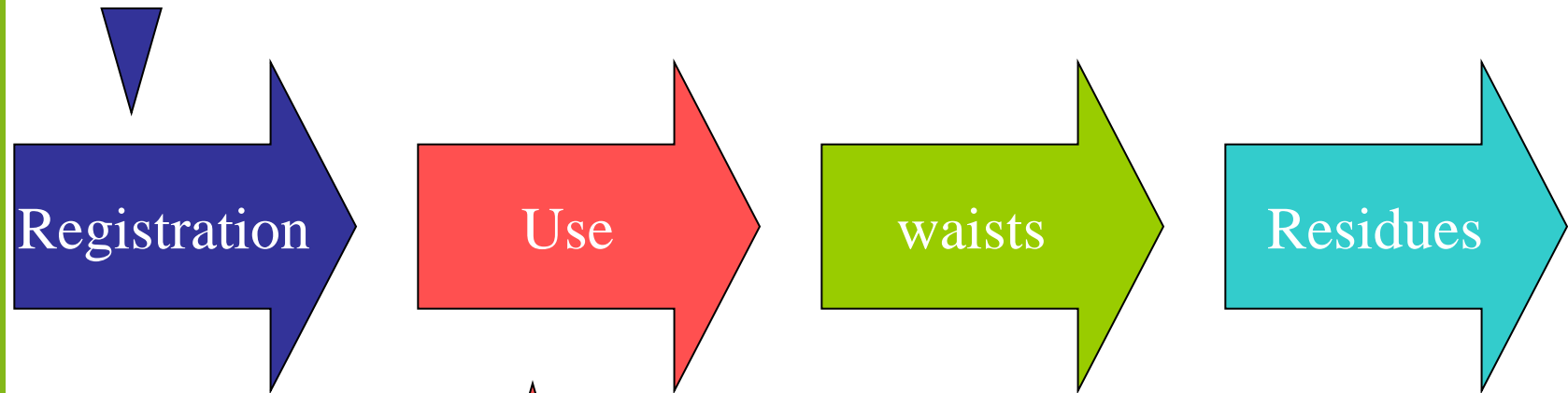
ALGERIE
ARGENTINA
BELARUS
BELGIUM
BO
GAMBIA
GEORGIA
GERMANY
GREECE
HUNGARY
INDIA
IRELAND
ITALY
LITHUANIA
MALTA
MOROCCO
NETHERLANDS
NIGER
NORWAY
PHILIPPINES
POLAND
PORTUGAL
RUSSIAN FEDERATION
SCOTLAND
SPAIN
SRI LANKA
ST. LUCIA
SWEDEN
SWITZERLAND
SYRIA

THE NETHERLANDS
UAE
UGANDA
UNITED KINGDOM
USA

ENDURE adjusts to the EU plant protection policy

The EU « pesticide package» (adopted on 24/09/09)

Regulation 1107/2009 on the placing of plant protection products on the market



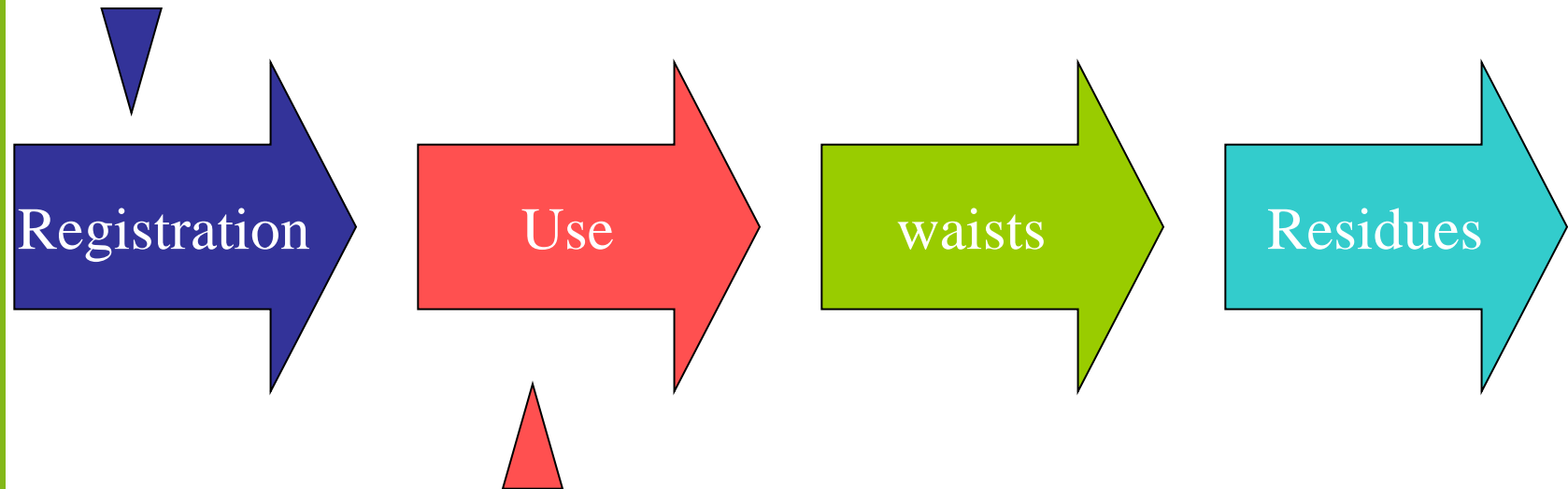
Framework Directive 2009/120/EC
on the sustainable use of pesticides

→ National Action Plans

→ **IPM principles adopted before 2014**

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Framework Directive 2009/120/EC
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→ National Action Plans

→ **IPM principles adopted before 2014**

**Integrated Pest Management
becomes the standard in the EU**

“IPM is a sustainable approach to managing pests by combining biological, cultural and chemical tools in a way that minimizes economic, environmental and health risks.”*

* C. Ohmart, California

IPM is a central concept for ENDURE

“IPM is a sustainable approach to managing pests by combining biological, cultural and chemical tools in a way that minimizes economic, environmental and health risks.”*

No IPM

IPM as a continuum

Ultimate IPM



Ultimate IPM system is one where no inputs are required because pests kept below their economic thresholds due to cultural and/or biological controls

A practical and dynamic vision of IPM that progresses gradually by incorporating scientific and technological contributions

* C. Ohmart, California

ENDURE provides scientific support to public policy implementation at EC and national levels



ENDURE Policy Brief: Establishing the conditions for the implementation of IPM

European policy seminar sponsored by the French
Presidency of the Council of the European Union

SUSTAINABLE AGRICULTURE AND PESTICIDE What is at stake? What are the options?

PARIS

25 - 26 Novembre 2008

with scientific support from
the European network of



IMPLEMENTING IPM:




**Policy
recommendations:**
Establishing the necessary
conditions for the
implementation of IPM




EUROPEAN COMMISSION
DIRECTORATE-GENERAL
ENVIRONMENT
Directorate B - Protecting the Natural Environment
ENV.B.3 - Biotechnology, Pesticides and Health

Implementation of IPM principle Guidance to Member States

ENDURE provides scientific support to public policy implementation at EC and national levels







**See sessions
Thursday 25 afternoon**

**ENDURE Policy Brief:
Establishing the conditions
for the implementation of IPM**

IMPLEMENTING IPM:

Policy recommendations:
Establishing the necessary
conditions for the
implementation of IPM

Eu
Pr
SUSTAIN
What is a
PARIS
25 - 26 Novembre 2008
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EUROPEAN COMMISSION
DIRECTORATE-GENERAL
ENVIRONMENT
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ENV.B.3 - Biotechnology, Pesticides and Health

**Implementation of IPM principle
Guidance to Member States**

ENDURE takes advantage of the defragmentation: CASE STUDIES

- **Case studies** on 9 selected specific issues at crop level

Crop	Pest
Wheat	Foliar diseases
Potato	Late blight
Tomato	White flies
Pomefruit	Scab, brown spot & codling moth
Integrated Weed Management	Row crops (maize)
Maize	All pests
Field vegetables	Biofumigation & landscape management
Banana	<i>Mycosphaerella</i> , black weevil & nematodes
Grapevine	Diseases, grape berry moth & weeds

- **Results**

- Pre-existing knowledge is fragmented: each country has its own context and pest problems and protection practices in several countries
- Sharing local experiences → testing their potential for broader implementation
- Understanding reasons for differences → bottlenecks and gaps of knowledge



**See next sessions
this morning
+ this afternoon**

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- The systems approach in practice: creating a place where researchers from multiple disciplines collaborate
 - To design advanced and innovative cropping systems
 - To comparatively assess their overall sustainability

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- Wheat-based systems

- The systems approach in practice: creating a place where researchers from multiple disciplines collaborate
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 - To comparatively assess their overall sustainability



•Wheat-based systems



•maize-based systems

System case studies

- The systems approach in practice: creating a place where researchers from multiple disciplines collaborate
 - To design advanced and innovative cropping systems
 - To comparatively assess their overall sustainability



•Wheat-based systems



•maize-based systems



•Orchards

- The systems approach in practice involves researchers from multiple disciplines
 - To design advanced and innovative systems
 - To comparatively assess their overall sustainability



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this morning
+ this afternoon**

•Wheat-based systems



•maize-based systems



•Orchards

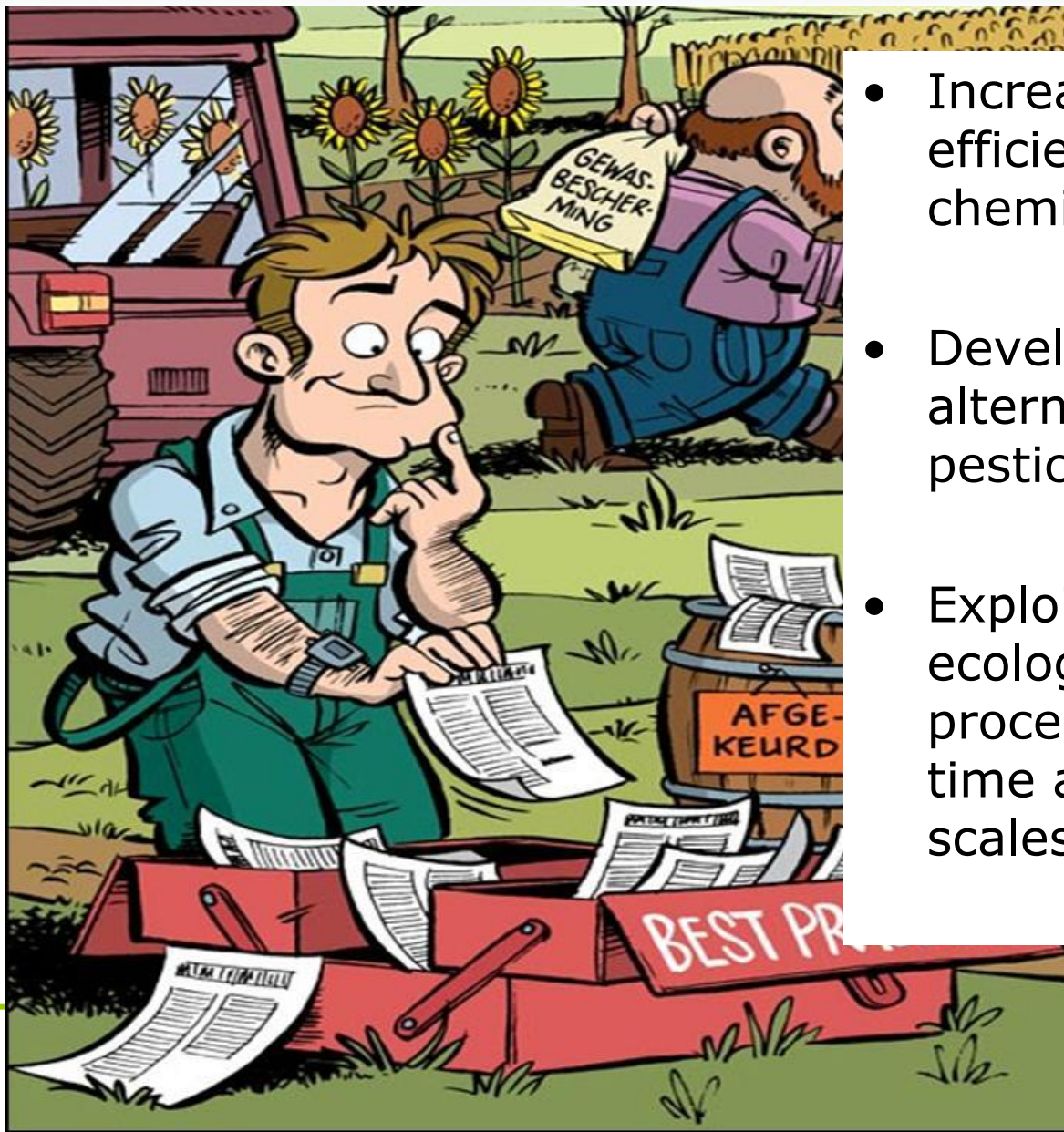
ENDURE explores the potential
of diverse research areas to
enrich the IPM toolbox

The IPM tool box



Source: Farming with future

The IPM tool box



- Increasing the efficiency of chemical control
- Developing alternatives to pesticides
- Exploiting ecological processes at large time and space scales

Source: Farming with future

- Tomorrow's innovation will emerge from today's research programmes
- A foresight study as a basis for a research agenda



European Crop Protection in 2030

A foresight study

Labussière E., Barzman M., Ricci P.

ENDURE's resources for IPM research



VIRTUAL LABORATORY



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The ENDURE Virtual Laboratory aims to provide easy access to information and resources on Integrated Crop Protection in Europe. The concept of the VL is to aggregate information on all aspects of crop protection research across Europe and beyond, to act as a portal facilitating research across disciplines and across borders. Please note that *this is an incomplete, development version* of the virtual laboratory (VL) and does not fully represent the final product. We welcome feedback, corrections and suggestions from all ENDURE participants. Please send any feedback you may have to rres.endure@bbsrc.ac.uk.

Physical Resources Online Resources



Analytical Equipment

Laboratory analytical equipment (NMR, mass spec, electron microscopy molecular detection)



Collections

Reference collections of arthropods, nematodes, weeds or plant pathogens. DNA/RNA libraries. Germplasm/crops expressing pest resistance traits



Controlled Environment

Sophisticated CE/glasshouse facilities



Experimental Sites

Sites for controlled and replicated field experiments



Laboratories

Laboratories for genomics, metabolomics and/or proteomics research

ENDURE's resources for IPM research



★
**See sessions
Thursday 25 morning**

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Physical Resources Online Resources



Analytical Equipment
Laboratory analytical equipment (NMR, mass spec, electron microscopy molecular detection)



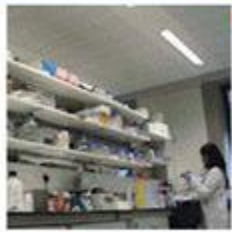
Collections
Reference collections of arthropods, nematodes, weeds or plant pathogens. DNA/RNA libraries. Germplasm/crops expressing pest resistance traits



Controlled Environment
Sophisticated CE/glasshouse facilities



Experimental Sites
Sites for controlled and replicated field experiments



Laboratories
Laboratories for genomics, metabolomics and/or proteomics research

Advisers:
a major target audience for
ENDURE

Advisers as a target audience

- ENDURE's social scientists: advisers are key to IPM implementation
- ENDURE develops training material for IPM learning and organises training sessions with advisers
- ENDURE outputs are disseminated in practical guides



- A solution-oriented data base for European advisers

a network of researchers:

identification
and/or production
of the "best" IPM
documents

a network of advisers:

information needs,
demand driven,
ready to use info

The screenshot displays the Endure Information Centre interface. At the top, there's a navigation bar with the logo and the tagline "diversifying crop protection". Below this, there are search filters for "Crop", "Pest and diseases", "Measure", and "Region". The "Crop" filter is set to "Triticum sp." and "TRZSS". The "Pest and diseases" filter is set to "Fungi" and "IPFUNGK". The "Measure" filter is set to "preventive measures". The "Region" filter is set to "Denmark". Below the filters, there's a section titled "Reports (12) found" with a table of results. The table has columns for "Crop", "Pest and diseases", "Measure", "Region", "Title", "Practicability", "Language", and "View". The first row shows "Wheat" for "Fusarium spp." with the measure "Using Cultivar Resistance to Reduce Fungi ..." and a "ready to use" status. The table also includes a pagination bar at the top of the results section.

Crop	Pest and diseases	Measure	Region	Title	Practicability	Language	View
Wheat	Fusarium spp.	Tolerant ...	DK	Using Cultivar Resistance to Reduce Fungi ...	ready to use		View
Wheat	Fus						View
Wheat	Fun						View
Wheat	Fun						View
Wheat	Fun						View
Wheat	Fus						View

1000 national
documents, reviews
and links about IPM
and non chemical
alternatives of several
European Countries

- A solution-oriented network of advisers

a network of researchers:

identification and/or production of the "best" IPM documents

★
**See last session
this morning
+ workshop
this afternoon**

a network of advisers:

information needs, demand driven, ready to use info

The screenshot shows the Endure Information Centre interface. At the top, there's a header with the logo and navigation links. Below the header, there are several filter boxes: 'Crop' (Triticum sp., TRZSS), 'Pest and diseases' (Fungi, IFUNGK), 'Measure' (preventive measures), and 'Region' (Denmark, Overview, DK). A 'Search' button is also visible. Below the filters, a section titled 'Reports (12) found' displays a list of reports. The first report is 'Wheat' by 'Fusarium spp.' with a 'Tolerant ...' measure, 'DK' region, and a 'ready to use' status. The interface includes pagination controls and a table of results.

Crop	Pest and diseases	Measure	Region	Title	Practicability	Language
Wheat	Fusarium spp.	Tolerant ...	DK	Using Cultivar Resistance to Reduce Fungi ...	ready to use	
Wheat	Fus					
Wheat	Fun					
Wheat	Fun					
Wheat	Fun					

1000 national documents, reviews and links about IPM and non chemical alternatives of several European Countries

**Join the network:
they are 128 already!**

ENDURE's future

- We planted a tree...
... the most valuable harvest has yet to come...



- ENDURE will continue beyond 2010 in the form of a European Research Group.

2010 is not the end of ENDURE

- We planted a tree...
... the most valuable harvest has yet to come.



★
**Official launching
Wednesday 24, 18:30**

- ENDURE will continue beyond 2010 in the form of a European Research Group.

Time	Duration	Auditorium	Room PARIS	Room MILAN
08:30	00:30	REGISTRATION		
09:00	01:00	P1 - Official opening: Four years' research with the crop protection community <i>Chair: François Houllier-INRA</i> <i>Speaker: Tim Hall - DG research</i>		
10:00	01:45	P2 - Case studies and system case studies <i>Chair: Richard Smiley - Oregon State University</i>		
11:45	01:15	P3 - ENDURE for trainers and advisers <i>Chair: Paul van Mele - Agro-insight</i>		
13:00	01:30	LUNCH		
14:30	02:00	Panel Discussion 1 - Sustainability assessment of future orchard systems	Market Square 2 - ENDURE interfaces with European farm advisers and IPM trainers. <i>9 stands allowing:</i> - Demonstration of the training tools - Interactive Discussions with the Network of Advisers	Market Square 1 - Results and tools from case studies and system case studies. <i>8 stands allowing:</i> - Direct interactions with ENDURE researchers on their approach and results - Demonstration of the tools developed
16:30	00:30	BREAK		
17:00	01:30		Market Square 2 - continued	Market Square 1 - Continued
18:30	01:00	P 4 - ENDURE beyond 2010: launching the European Research Group <i>Chair: Marion Guillou - INRA</i>		
19:30	02:30	COCKTAIL & DINNER		

Wednesday 24

Time	Duration	Auditorium	Room PARIS	Room MILAN
08:00	00:30	REGISTRATION		
08:30	00:45	P5 - Research priorities for the development of IPM in European farming systems <i>Chair: Richard Bélanger - Université Laval</i>		
09:15	01:45	Panel Discussion 2 - Innovation for IPM: new approaches, tools and emerging technologies	Panel Discussion 3 - IPM the Global challenge : Endure fosters international collaboration	
11:00	00:30	BREAK		
11:30	01:15	Panel Discussion 4 - Innovation for IPM: the point of view of input producing industries <i>Panel members: Representatives from agrochemical, biocontrol, and precision agriculture sectors</i>		Market Square 3 - ENDURE's resources for IPM research. 5 stands allowing: - Direct interactions with ENDURE researchers - Demonstration of ENDURE tools for researchers and extension
12:45	01:15	LUNCH		
14:00	00:45	P6 - Ingredients for successful implementation of IPM policies <i>Chair: Stephen Duke - USDA</i>		
14:45	00:45	Panel Discussion 5 - The ingredients for successful IPM practice. Learning from three innovative farmers. <i>Panel members: Lars Joergensen (DK), Peter Hall (UK), Olivier Fumery (FR)</i>		Market Square 3 - continued
15:30	01:15	Panel Discussion 6 - Addressing IPM in National Action Plans <i>Examples from Germany, France, UK, Italy and Hungary</i>		
16:45	00:30	P 7 - Conclusion <i>Chair: Olivier le Gall-INRA</i> <i>Speakers: J. van Lenteren (IOBC), Patrizia Pitton (DG SANCO)</i>		

Thursday 25