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

Pierre RICCI
INRA
Coordinator of ENDURE
ENDURE’s initial concepts (2004)
ENDURE’s initial concepts (2004)

Development of research on detrimental impacts of crop production / protection

Production process
Crop protection

- biodiversity
- soil
- air
- Human health
- waters
ENDURE’s initial concepts (2004)

Time to develop a similar effort on reconsidering crop protection

Production process
Crop protection

- biodiversity
- soil
- Human health
- air
ENDURE’s initial concepts (2004)

- Needs
  - Research
  - Knowledge
  - Innovation

Diversifying crop protection
ENDURE’s initial concepts (2004)

- Needs
  - Research
  - Knowledge
  - Innovation

Science-driven research
ENDURE’s initial concepts (2004)

- Needs
  - Research
  - Knowledge
  - Innovation

Science-driven research

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
ENDURE’s initial concepts (2004)

Defragmentation
NoE

[ENDURE logo]

[Diagram of agricultural settings with characters and tools]
Networking:
first ENDURE achievement
Networking: first ENDURE achievement

10 countries
16 institutions
Networking: first ENDURE achievement

- Research: 59%
- Education: 27%
- Extension: 10%
- Industry: 4%

Up to 470 participants
Networking: first ENDURE achievement

Up to 470 participants

- Research: 59%
- Education: 27%
- Extension: 10%
- Industry: 4%

- Entomologists
- Pathologists
- Weed scientists
- Agronomists
- Geneticists
- Ecologists
- Economists
- Social scientists
**Audience of the conference**

251 delegates

- **Research**: 44%
- **Extension or advisory service**: 12%
- **Policy maker**: 17%
- **Industry or retailers**: 15%
- **Farmer or farmer organization**: 8%
- **NGOs**: 1%
- **Other**: 2%

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[Logo: endure®]
251 delegates from 48 countries

- Research: 44%
- Extension or advisory service: 12%
- Policy maker: 17%
- NGOs: 1%
- Industry or retailers: 15%
- Farmer or farmer organization: 8%
- Other: 2%

Countries represented:
- ALGERIE
- ARGENTINA
- BELARUS
- BELGIUM
- BOSNIA AND HERZEGOVINA
- BULGARIA
- CAMEROON
- CANADA
- CHILE
- CHINA
- CROATIA
- CZECH REPUBLIC
- DENMARK
- EGYPT
- ENGLAND
- ESTONIA
- FINLAND
- FRANCE
- 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
Audience of the conference

251 delegates from 48 countries

Policy maker: 17%
Industry or retailers: 15%
Farmer or farmer organization: 8%
Extension or advisory service: 12%
Research: 44%
Journalists: 1%
NGOs: 1%
Other: 2%

International collaboration

See session Thursday 25, 9:15
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

Registration → Use → waists → Residues

Framework Directive 2009/120/EC on the sustainable use of pesticides
→ National Action Plans
→ IPM principles adopted before 2014
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

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

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

IMPLEMENTING IPM:

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

Implementation of IPM principles
Guidance to Member States
ENDURE provides scientific support to public policy implementation at EC and national levels

**SUSTAINABLE AGRICULTURE AND PESTICIDES: What is at stake? What are the options?**

**PARIS**

25 - 26 Novembre 2008

with scientific support from the European network of excellence ENDURE

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

**IMPLEMENTING IPM:**

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

Implementation of IPM principles Guidance to Member States

See sessions Thursday 25 afternoon
ENDURE takes advantage of the defragmentation:
CASE STUDIES
Crop case studies

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

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

• 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
Crop case studies

• 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
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
System case studies

- The systems approach in practice: creating a place where researchers from multiple disciplines collaborate
  - To design advanced and innovative cropping systems
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- Wheat-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
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- 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
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- Wheat-based systems
- Maize-based systems
- Orchards
System case studies

- The systems approach in practice:
  - To design advanced and innovative cropping systems
  - To comparatively assess their overall sustainability

- Wheat-based systems
- Maize-based systems
- Orchards

See next sessions this morning + this afternoon
ENDURE explores the potential of diverse research areas to enrich the IPM toolbox
Research studies to enrich components of IPM strategies

The IPM tool box
Research studies to enrich components of IPM strategies

The IPM tool box

- Increasing the efficiency of chemical control
- Developing alternatives to pesticides
- Exploiting ecological processes at large time and space scales
Looking ahead: a foresight study

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

<table>
<thead>
<tr>
<th>Analytical Equipment</th>
<th>Collections</th>
<th>Controlled Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory analytical equipment (NMR, mass spec, electron microscopy molecular detection)</td>
<td>Reference collections of arthropods, nematodes, weeds or plant pathogens. DNA/RNA libraries. Germplasm/crops expressing pest resistance traits</td>
<td>Sophisticated CE/glasshouse facilities</td>
</tr>
</tbody>
</table>

### Online Resources

<table>
<thead>
<tr>
<th>Experimental Sites</th>
<th>Laboratories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites for controlled and replicated field experiments</td>
<td>Laboratories for genomics, metabolomics and/or proteomics research</td>
</tr>
</tbody>
</table>
ENDURE’s resources for IPM research

See sessions Thursday 25 morning
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 advisors
- ENDURE outputs are disseminated in practical guides
Endure Information Centre

- 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

1000 national documents, reviews and links about IPM and non chemical alternatives of several European Countries
A solution-oriented database 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

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

Join the network: they are 128 already!

See last session this morning + workshop this afternoon
ENDURE’s future
2010 is not the end of ENDURE

- 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.

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

Official launching
Wednesday 24, 18:30
<table>
<thead>
<tr>
<th>Time</th>
<th>Duration</th>
<th>Auditorium</th>
<th>Room PARIS</th>
<th>Room MILAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>00:30</td>
<td>REGISTRATION</td>
<td></td>
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<tr>
<td>09:00</td>
<td>01:00</td>
<td><strong>P1 - Official opening: Four years' research with the crop protection community</strong>&lt;br&gt;&lt;i&gt;Chair: François Houllier-INRA&lt;br&gt;Speaker: Tim Hall - DG research&lt;/i&gt;</td>
<td></td>
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<tr>
<td>10:00</td>
<td>01:45</td>
<td><strong>P2 - Case studies and system case studies</strong>&lt;br&gt;&lt;i&gt;Chair: Richard Smiley - Oregon State University&lt;/i&gt;</td>
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<tr>
<td>11:45</td>
<td>01:15</td>
<td><strong>P3 - ENDURE for trainers and advisers</strong>&lt;br&gt;&lt;i&gt;Chair: Paul van Mele - Agro-insight&lt;/i&gt;</td>
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<tr>
<td>13:00</td>
<td>01:30</td>
<td>LUNCH</td>
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<tr>
<td>14:30</td>
<td>02:00</td>
<td>Panel Discussion 1 - <strong>Sustainability assessment of future orchard systems</strong></td>
<td><strong>Market Square 2 - ENDURE interfaces with European farm advisers and IPM trainers.</strong>&lt;br&gt;&lt;i&gt;9 stands allowing:&lt;br&gt;- Demonstration of the training tools&lt;br&gt;- Interactive Discussions with the Network of Advisers&lt;/i&gt;</td>
<td><strong>Market Square 1 - Results and tools from case studies and system case studies.</strong>&lt;br&gt;&lt;i&gt;8 stands allowing:&lt;br&gt;- Direct interactions with ENDURE researchers on their approach and results&lt;br&gt;- Demonstration of the tools developed&lt;/i&gt;</td>
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<tr>
<td>16:30</td>
<td>00:30</td>
<td>BREAK</td>
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<tr>
<td>17:00</td>
<td>01:30</td>
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<td><strong>Market Square 2 - continued</strong></td>
<td><strong>Market Square 1 - Continued</strong></td>
</tr>
<tr>
<td>18:30</td>
<td>01:00</td>
<td><strong>P 4 - ENDURE beyond 2010: launching the European Research Group</strong>&lt;br&gt;&lt;i&gt;Chair: Marion Guillou - INRA&lt;/i&gt;</td>
<td></td>
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<tr>
<td>19:30</td>
<td>02:30</td>
<td>COCKTAIL &amp; DINNER</td>
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<tr>
<td>Time</td>
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<td>REGISTRATION</td>
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</tbody>
</table>
| 08:30  | 00:45    | P5 - Research priorities for the development of IPM in European farming systems  
Chair: Richard Bélanger - Université Laval |            |            |
| 09:15  | 01:45    | Panel Discussion 2 - Innovation for IPM: new approaches, tools and emerging technologies  
Panel members: Representatives from agrochemical, biocontrol, and precision agriculture sectors | 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  
Panel members: Representatives from agrochemical, biocontrol, and precision agriculture sectors | 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  
Chair: Stephen Duke - USDA |            |            |
| 14:45  | 00:45    | Panel Discussion 5 - The ingredients for successful IPM practice. Learning from three innovative farmers.  
Panel members: Lars Joergensen (DK), Peter Hall (UK), Olivier Fumery (FR) |            | Market Square 3 - continued |
| 15:30  | 01:15    | Panel Discussion 6 - Addressing IPM in National Action Plans  
Examples from Germany, France, UK, Italy and Hungary |            |            |
| 16:45  | 00:30    | P 7 - Conclusion  
Chair: Olivier le Gall-INRA  
Speakers: J. van Lenteren (IOBC), Patrizia Pitton (DG SANCO) |            |            |