Economic impact of changes to pesticide legislation

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Legislation affecting pesticides

Wider economic impacts of legislation

Changes in availability – the effect on profitability & viability
Sustainable Use Directive

The Sustainable Use Directive 2009/128/EC

Overall objective is to establish:

“a framework to achieve a **sustainable use of pesticides** by reducing the risks and impacts of pesticide use on human health and the environment and promoting the use of **Integrated Pest Management** and of **alternative approaches** or techniques such as non-chemical alternatives to pesticides”.
Regulations under the Sustainable Use Directive

- Regulation (EC) No 1185/2009 concerning statistics on pesticides
- Directive 2009/127/EC with regard to machinery for pesticide application
- Regulation (EC) No 1107/2009 concerning the placing of plant protection products on the market
EU Impacts of SUD

- National Action Plan
  Integrated pest management – does it cost more?

- Inspection of equipment
  Cost of certification

- Re-approval of active substances

- Training
  Cost of certification
Pesticide approvals (?)

• Legislation aims to drive improve standards
  • Environmental & human health
  • Tougher acceptance criteria at renewal & registration
  • Important to understand wider implications of change
    • Impact on crop production
    • Impact on target weed/ pest/ disease populations
    • Impact on cost of control
Impact assessment

• Developed a methodology to help...
  • The industry identify R&D priorities
  • Identify critical areas for government intervention - funding
• Assess the impact of mitigation
  • Can product be applied differently to reduce particular risk – e.g. low drift nozzles – Say no to drift
• Provide evidence of value of active substance
  • Support industry in maintaining crucial active substances
  • Support to registration or reregistration of active substances
Identify research priorities

- Cereals and oilseeds: published
- Potatoes: published
- Grass and forage: published
- Peas and beans: completed
- Fruit and vegetables: published
- Non-edibles (plants and flowers): published
- Overall assessment of gaps and priorities: published
## Identify research priorities

<table>
<thead>
<tr>
<th>Main source of loss</th>
<th>Crops affected</th>
<th>% reduction in margin</th>
<th>% reduction in production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Downy mildew</td>
<td>Onions</td>
<td>209%</td>
<td>46%</td>
</tr>
<tr>
<td>2 Weed control</td>
<td>Alliums</td>
<td>51%-86%</td>
<td>12%-31%</td>
</tr>
<tr>
<td>3 Volunteer potatoes</td>
<td>Vining peas</td>
<td>49%</td>
<td>35%</td>
</tr>
<tr>
<td>4 Downy mildew</td>
<td>Lettuce (outdoor)</td>
<td>46%</td>
<td>30%</td>
</tr>
<tr>
<td>5 BLW</td>
<td>Carrots</td>
<td>33%</td>
<td>17%</td>
</tr>
<tr>
<td>6 Black-grass</td>
<td>Cereals</td>
<td>28%</td>
<td>9%</td>
</tr>
<tr>
<td>7 Raspberry Beetle</td>
<td>Raspberry</td>
<td>25%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Research priorities across all sectors based on total impact on gross margin - 2010
Approvals legislation - costs

• More detailed dossier’s for active substances
  • Cost more to provide evidence for approval / reregistration

• Increased cost of pesticide products to farmer (?)
  • To cover registration costs

• Reduced availability / range of actives
Support industry

Demonstrating value of active

1. **Change cost of production**
   - Can target pest still be controlled?
   - How much does it cost?

2. **Yield impacts**
   - Can the pest still be controlled as well as it was?

3. **Impacts on resistance management**
   - Is it a key active in resistance management programme?
   - Are there alternative modes of action?

4. **Use of alternative products /control options**
   - What are the risks?
1. Change cost of production

• Production can be more expensive
  • Switch to alternative, sometimes more costly products
  • Use increased cultural control
  • Barriers – e.g. insect mesh

• Withdrawal can be associated with yield loss

• Can make growing a particular crop on some land unprofitable
2. Yield impacts

- Availability of alternatives
  - Are they as effective?
  - Are they as affordable?

- Reduced level of weed, pest or disease control
  - depends on season
  - high vs low disease pressure

- Can businesses remain viable?
2. Yield impacts - Examples

**Horticulture**
- *Allium* - Loss of mancozeb
  - 19% reduction in yield
  - £22M cost implication
- *Soft fruit* - Loss of iprodione (botrytis)
  - 6% reduction in production
  - £22M cost implication

**Arable**
- *Wheat* - Loss of azole fungicides
  - 4% reduction in yield
  - £174M cost implication
- *Oilseeds* - Loss metconazole & tebuconazole
  - 1% reduction in yield
  - £4M cost implication
3. Impacts on resistance management

Loss of active can:

- Reduce the range of modes of action
- **Shorten** the time to resistance development
- Increase the cost of control programmes

- Increase focus on **other aspects of disease management**
  - varietal control
  - good hygiene
4. Use of alternative controls

• Can be **more expensive** and/or **less effective** than withdrawn product
  • Use of higher rates of more expensive active substances

• Are the alternative active substances as effective?

• Focus on **non-cultural methods of control**— varietal resistance, crop rotation, delay drilling, improving timeliness of pesticide applications
Support registration / reregistration

• Understanding benefits or potential benefits
• Provide additional support to dossier
• Especially valuable where;
  • active is only one available for particular purpose or
  • strong component of resistance management strategy

Endocrine disruptors

• Significant uncertainty over how they are defined
• Therefore unclear how many actives are affected
• Impact report collated for AHDB end last year
  • Actives categorised in 3 ways

<table>
<thead>
<tr>
<th>Category</th>
<th>Level of risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likely to be lost</td>
<td>High - clear evidence for ED activity</td>
</tr>
<tr>
<td>Might be lost</td>
<td>Medium - some evidence for ED activity depends on definition</td>
</tr>
<tr>
<td>Unknown</td>
<td>? - Evidence is unclear – may be an ED</td>
</tr>
</tbody>
</table>
### Implications of loss- ED example

<table>
<thead>
<tr>
<th>Active</th>
<th>Risk</th>
<th>Crop</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxiconazole</td>
<td>High</td>
<td>Cereals</td>
<td>Reduced <strong>rust control</strong></td>
</tr>
<tr>
<td>Prothioconazole</td>
<td>??</td>
<td>Cereals &amp; oilseeds</td>
<td>Reduced <strong>disease control</strong> – increased reliance on fewer modes of action</td>
</tr>
<tr>
<td>Metconazole &amp; tebuconazole</td>
<td>High</td>
<td>Oilseeds</td>
<td>Loss <strong>PGR control</strong></td>
</tr>
<tr>
<td>Carbetamide &amp; propoyzamide</td>
<td>Medium</td>
<td>Oilseeds</td>
<td>Loss <strong>black-grass control</strong></td>
</tr>
<tr>
<td>Cyproconazole &amp; tebuconazole</td>
<td>High</td>
<td>Pulses</td>
<td>Reduced <strong>disease control</strong> &amp; increased resistance risk</td>
</tr>
<tr>
<td>Linuron</td>
<td>High</td>
<td>Pulses</td>
<td>Reduction in <strong>weed control</strong></td>
</tr>
<tr>
<td>Chlorothalonil</td>
<td>??</td>
<td>Cereals &amp; pulses</td>
<td>Loss of <strong>multisite active</strong> – increased resistance risk</td>
</tr>
</tbody>
</table>
ED Likely to be lost - horticulture

Largest losses
Thiacloprid – Soft fruit (£58M), Field veg (£57M), Tree fruit (£27M)
Linuron – Field veg (£35M)

Other impacts
Mancozeb – Outdoor salads (£23M), Alliums (£22M)
Iprodione – Soft fruit (£22M)

Cost of yield loss only – no additional costs of production

% shows the percentage of the total value of the sector that is lost
Note not all assessed actives are shown – those with small impacts have been removed
**Largest losses**
- Linuron – Potatoes (£52M), Pulses (£14M)
- Cyproconazole – Pulses (£9M) & Beet (£28M)

**Other impacts**
- Epoxiconazole – reduced rust control in cereals (£8M)
- Metconazole & tebuconazole – PGR activity in OSR (£8M)

Cost of yield loss only – no additional costs of production

Annual loss of value to the industry £M

- Cereals
- Oilseeds
- Pulses
- Potatoes
- Sugar beet

% shows the percentage of the total value of the sector that is lost
Note not all assessed actives are shown – those with small impacts have been removed
Cost of pesticide legislation

• Definition of EDs least strict
  • Cost the arable & hortic industry £905M
  • 10% reduction in production
  • Plus additional cost of alternative controls

• At its most strict
  • Cost the arable & hortic industry £3,003M
  • 33% reduction in production
  • Business restructure, other cost changes for alternatives
Other influences are taking effect too...

TTIP controversy: EU drops pesticide laws because US says it should

European Commission denies that the TTIP had any bearing on the decision

US trade officials pushed EU to shelve action on endocrine-disrupting chemicals linked to cancer and male infertility to facilitate TTIP free trade deal
Opportunities

• Pressure on pesticide actives
  • Need to identify alternative control strategies
  • Need to look at resistance management
  • Need to improve best practice

• Affects wide range of crops
  • Arable, horticulture (edible & ornamental)

• Uncertain...
Summary

• Pesticide legislation driving improved standards for environmental and human health protection.

• This is resulting in tougher standards for existing pesticides at renewal and for new registrations.

• Need to consider the impacts of any changes and potential mitigation actions.
  • Cost of production
  • Yield
  • Business viability
  • Jobs
Thank you
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