Environmental Risk Assessment: major upgrades needed

Martin Dermine, PhD, Pesticide Action Network Europe
EFSA stakeholder NGO meeting – 13 February 2019
Collapse of biodiversity

- Multifactorial (habitat loss, pollution, climate change...)

- European Commission objective to halt erosion of biodiversity by 2010...2020...2100???

- Hallman et al. (2017): more than 75% decline in insect biomass over 27 years

- Sánchez-Bayo and Wyckhuys (2019): insect decline: agricultural practices and pesticides
Legal requirements - pesticides

PPPR (EC) 1107/2009:
Rec 8:
“The purpose of this Regulation is to ensure a high level of protection of both human and animal health and the environment…. The precautionary principle should be applied.”

Art 2(b,e):”Residues/products shall not have any unacceptable effect on the environment. ” (non-target species, biodiversity and ecosystems)

Annex II 3.8.: no unacceptable effects on bees
Collapse of biodiversity

To be improved...

• Lack of sensitivity of the current methodologies
• Lack of independence in the design of test protocols
• Lack of post-authorisation monitoring
Lack of sensitivity: Underestimation of harm?

Fungicides

- Predicted Environmental Concentrations (PECs) FOCUS scenarios
- Measured Fungicide Concentration (MFC) sw/sed
- Are PECs worst case scenarios?

<table>
<thead>
<tr>
<th>Step</th>
<th>Seawater</th>
<th>Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>15% PECsw &lt; MFCsw</td>
<td>67% PECsed &lt; MFCsed</td>
</tr>
<tr>
<td>4</td>
<td>28% PECsw &lt; MFCsw</td>
<td>76% PECsed &lt; MFCsed</td>
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</tbody>
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EU freshwater ecosystems unprotected

Study - Outline

- 2006-2010 EEA data
- 4000 EU sites; 91 EU rivers
- 223 Organic pollutants
- Fish, invertebrates, algae

EU freshwater ecosystems unprotected

**Acute Toxicity**
- Acute Risk at 14% sites

**Chronic Toxicity**
- Chronic Risk 42% sites

Lack of independence of test protocols

- Historically, industry took part in the design of test protocols
- Today, industry is still present through lobbying of Member States, through OECD
Lack of independence: recovery of non-target organisms guideline

- Terrestrial and aquatic risk assessment for pesticides
- Hypothesis: organisms’ populations will recover from important mortalities or will come from neighbouring areas
- 50% of non-target organisms can be killed
- > 50% with field tests
Lack of independence: recovery of non-target organisms guideline

EU guideline on terrestrial risk assessment (2002)

ESCORT2: European Standard Characteristics of Non-Target Arthropod Regulatory Testing (EPPO/SETAC ≠ EU)

Candolfi et al. (2002): Principles for regulatory testing and interpretation of semi-field and field studies with non-target arthropods.

Lack of independence: recovery of non-target organisms guideline

- EU guideline on terrestrial risk assessment (2002)
- ESCORT2: European Standard Characteristics of Non-Target Arthropod Regulatory Testing (EPPO/SETAC ≠ EU)
- Candolfi *et al.* (2002)
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  - Novartis Crop Protection
  - Bayer
  - Zeneca
  - Rhone-Poulenc
Lack of independence: recovery of non-target organisms guideline

2012: Kattwinkel et al.: Ecological recovery of populations of vulnerable species driving the risk assessment of pesticides.

2016: Recovery in Environmental Risk Assessments at EFSA

- How many experts involved?
- Next steps?
Lack of post-marketing monitoring

- Risk Assessment models are (over-) simplifying the complexity of nature
- No systematic post-marketing environmental monitoring
- No automatic feedback mechanism
- No automatic update of the stringency of the models of risk assessment
Final remarks

- Pressures are increasing steadily on the environment
- Biodiversity loss takes place at a dramatic pace
- Real-time monitoring is missing, no iterative process
- Scenarios fail to mimic real-life scenarios
- Urgent need to reduce pesticide environmental exposure
- Environmental Risk Assessment must have a truly precautionary, ecological-based approach
- Develop landscape risk assessment
Thank you!