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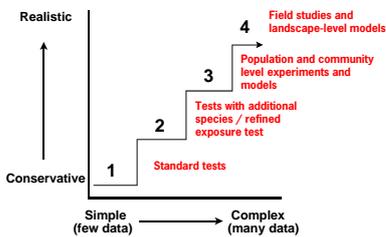
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## SETAC endorsed workshop description and proposed higher-tier options

### Background

Registration of Plant Protection Products (PPPs) in the EU is under Regulation 1107/2009, which recommends a tiered approach to assessing the risk to non-target terrestrial plants (NTTPs). However, little information is provided on how to perform and implement higher tier studies or how to use them to refine the risk assessments. Two SETAC endorsed workshops were organized with sponsorship from the European Crop Protection Association, the Dutch Ministry of Economic Affairs and participating stakeholder representatives.

### Higher tier options for NTTPs



### Overall Workshop Aims

- Two workshops (April 2014, Sept 2015) with the aim of:
- developing a framework for a higher-tier approach for assessing the risk of plant protection products to non-target terrestrial plants (NTTP) in off-crop areas
  - providing expert opinion and advice as input for the ongoing revision of the terrestrial ecotoxicology guidance document and NTTP risk assessment procedures.

### Input workshop 2

- Arts, Gertie H.P., Margit Dollinger, Eva Kohlschmid, Lorraine Maltby, Hugo Ochoa-Acuña, Véronique Poulsen, 2015. An ecosystem services approach to pesticide risk assessment and risk management of non-target terrestrial plants: recommendations from a SETAC Europe workshop. *Environ. Sci. Pollut. Res.* 2: 2350-2355 (DOI) 10.1007/s11356-014-3637-6
- Christl, H. 2015. Comparative assessment of the sensitivity of wild plant and crop species to plant protection products and their active substances, evaluated in laboratory and field tests, published data and regulatory (unpublished) studies, in context of Regulation 1107/2009 and the upcoming new Terrestrial Guidance document. An initiative of the SETAC tripartite workshop on Terrestrial plants held in Wageningen, April 1-3, 2014. Tier3 solutions GmbH Tier3 report number B14037. 142 pp.
- European Food Safety Authority (EFSA), 2014. Scientific Opinion addressing the state of the science on risk assessment of plant protection products for non-target terrestrial plants. EFSA Panel on Plant Protection Products and their Residues, Parma, Italy. *EFSA Journal* 12(7): 3800.
- Krueger, H., 2015. Review of Multispecies and Field Testing in Assessing Risk of Chemicals to Non-Target Plants in Agricultural Landscapes. Literature review. 17 pp.
- Zande, J.C. van, 2015. Drift Reducing Technology and buffer zones to reduce the exposure of non-target plants. WageningenUR-Plant Research International (WUR-PRI). Action from SETAC non-target terrestrial plant Workshop 2014. 34 pp.

### Charge questions of workshop 2

1. How to address reproductive effects in the Risk Assessment for non-target terrestrial plants (NTTPs) ?
2. How to conduct higher tier tests (field studies) for NTTPs and what options are available ?
3. How to mitigate risks for NTTPs ?

### Workshop participants workshop 2 (from academia, business and government)



## Agreed recommendations

### Effects on reproduction

Surrogate endpoints of the long-term impact of PPP on vascular plant reproduction are flowering, seed production and seed germination. Preliminary comparative analysis of reproductive and vegetative endpoints indicates that the reproductive endpoints (mainly seed number and seed biomass) are on average less than a factor of 2 more sensitive than the vegetative endpoints (vegetative vigour, biomass) when comparing the same point estimate (i.e. EC10 or EC50). This conclusion was independent of whether the analysis was based only on data collated by EFSA (EFSA, 2014) or on an extended dataset containing published and unpublished information (Christl, 2015).



### Effects on reproduction

The preliminary analysis described suggests that reproductive endpoints may be covered by applying an appropriate extrapolation factor to the vegetative vigour endpoints (e.g. EC50 or EC10). However, in cases where reproductive endpoints are much more sensitive than vegetative endpoints, reproduction studies may be necessary.

Further analysis of datasets is needed to investigate whether it is possible to predict which PPPs have a much larger impact on reproduction than on vegetative growth.

### Lower and higher tier testing

There is a need for defining a (surrogate) reference tier in order to calibrate the tiered approach. For defining a reference community, a trait-based approach seems promising. Traits should be linked to the ecosystem services provided by NTTPs.

### Lower and higher tier testing

Based on an initial analysis of wild versus crop species (Christl, 2015), testing with standard crop species appears to be appropriate for risk assessment of wild species. There is a need for criteria to evaluate and interpret field studies in the context of SPGs.

### Mitigation

Mitigation measures described in MaGPIE are appropriate for non-target terrestrial plants. Risk assessment indicates what proportion of risk reduction is required, but how to achieve this (i.e. implementation) is up to individual MS (using the toolbox from MaGPIE)

### Mitigation

Vegetated strips need to be managed and the question is what to manage them for (annual versus perennial plants/ flower strips). Management strategy of vegetated strips should be related to the specific protection goals.

### Compensation

Compensation for in-crop effects should be defined by risk managers in the light of the specific protection goals. Several pieces of legislation may be relevant when considering compensation (e.g. sustainable use directive; CAP; habitat directive).



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