4.15 Insecticidal activity of a PPP as a criterion to trigger laboratory studies with non-*Apis* bees? Make a BeeCision!

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Abstract

Over the last six years, the effects of plant protection products (PPP) on pollinators such as honeybees have come increasingly to the attention of both scientists and the general public. In 2013, under the new EU Regulation 1107/2009, the European Food Safety Agency (EFSA) published a preliminary new guidance document (GD) on risk assessment for pollinators. In addition to assessments on honey bees, the new GD requires acute and chronic risk assessments for adult bumble bees and solitary bees as well as chronic risk assessment of bee larvae development. After a strong debate about the feasibility of the new GD (very complex, highly conservative) and due to the lack of validated test guidelines (in particular for non-*Apis* bees), the EU Commission published a roadmap (SANCO/10606/2014) for the step-wise implementation of the GD.

According to the roadmap, acute contact and oral toxicity tests for bumble bees and acute contact toxicity tests for solitary bees are requested from January 2015 from which the GD enters into force. Acute oral toxicity tests for solitary bees will be implemented by January 2017. After more than two years later, the chronic oral toxicity tests and larvae toxicity tests for non-*Apis* bees are expected to be implemented.

In the absence of the requested data, risk assessments for these species are based on honey bee toxicity endpoints. However, non-*Apis* risk assessments based on honeybee data sets are very conservative. PPPs therefore frequently fail the initial screening step and higher tier testing is automatically triggered.

In accordance with the new GD, we conducted risk assessments on honeybees, bumble bees and solitary bees on 20 herbicides and 20 fungicides approved for use in Europe. The non-*Apis* risk assessments were based on honey bee toxicity endpoints obtained from data sets available to the public (e.g. EFSA or the European Commission). All tested herbicides and fungicides failed the initial screening step for bumble bees and solitary bees. Moreover, refinement with actual residue and sugar content data will probably not lead to a better evaluation. Nevertheless, risk assessments conducted on non-target arthropods (*Aphidius* and *Typhlodromus*) suggested that many of the herbicides have little or no insecticidal activity. In particular, risk assessments for 13 of the herbicides and 14 of the fungicides suggested that these compounds do not pose a risk to neither the standard arthropod species nor honey bees, indicating a low risk to all insects including pollinators.

In order to assess the risk posed by non-insecticidal PPPs to bumble and solitary bees more realistically and bridge the time until suitable testing guidelines are available, we propose the use of 'BeeCision'. This approach reinstitutes the 'insecticidal activity' approach originally suggested in the draft EFSA Guidance Document (2012) and triggers further tests on non-*Apis* species only when potential insecticidal activity is clearly demonstrated. The current presentation evaluates the benefits of this approach and discusses its potential use as an aid to assessing the risk posed by PPPs to bees.

References

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