## Queries to the Author

**Chapter Number: 10**

**Chapter Title:** Overview of a Proposed Ecological Risk Assessment Process for Honey bees (*Apis mellifera*) and Non-*Apis* Bees

| Query | Description | Author's Response |
|---|---|---|
| 1. | **Section:** Figures<br><br>**Author:** Captions are not provided for Figures 10.1, 10.2, 10.3, 10.4, and 10.5. Please check. | The captions associated with Figures 10.1 – 10.5 are listed below:<br>**Figure 10-1**. Diagram of Ecological Risk Assessment Process employed by US EPA<br>**Figure 10-2**. Insect pollinator screening-level risk assessment process for foliarly applied pesticides.<br>**Figure 10-3**. Higher-tier (refined) risk assessment process for foliarly applied pesticides.<br>**Figure 10-4**. Insect pollinator screening-level risk assessment process for soil and seed treatment of systemic pesticides. Note that this flow chart may apply for trunk injection as well, as modalities of exposure of pollinators are similar as for soil/seed treatments. For trunk injection however, further data are needed to appropriately describe the range of expected residue concentrations in nectar and pollen. As a consequence no default value is currently available for a quantification of the risk (Boxes 3a and 3b). A |

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| | compilation of available data could be made, with a particular attention to the corresponding injection protocols as it varies with the active substance involved and the tree.<br>**Figure 10-5**. Higher-tier (refined) risk assessment process for soil and seed treatment applied systemic pesticides. |
| 2. **Section:** Global<br><br>**Author:** The complete list of headings as appearing in the chapter is given below. Please check whether they have been given as intended. Please specify the change to be implemented, if any.<br><br>10.1 INTRODUCTION<br><br>10.2 PROTECTION GOALS, ASSESSMENT AND MEASUREMENT ENDPOINTS, TRIGGER VALUES FOR TRANSITIONING TO HIGHER LEVELS OF REFINEMENT, AND RISK ASSESSMENT TERMINOLOGY<br><br>10.3 RISK ASSESSMENT FLOWCHARTS<br><br>10.4 SPRAY APPLICATIONS<br><br>10.5 SOIL AND SEED TREATMENT APPLICATIONS FOR SYSTEMIC SUBSTANCES<br><br>10.6 SCREENING-LEVEL RISK ASSESSMENTS (TIER 1) | Minor edits have been made to the headings listed in the adjacent column to make subheadings more consistent between sections. The authors encourage the editors to use their own discretion in assigning subheadings levels. |

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| 10.7 FACTORS LIMITING CERTAINTY IN THE SCREENING ASSESSMENTSSTEP<br><br>10.8 REFINEMENT OPTIONS FOR SCREENING-LEVEL RISK ASSESSMENT<br><br>10.8.19 REFINEMENT OPTIONS FOR SPRAY APPLICATIONS<br><br>**10.89.1.1 REFINEMENT OPTIONS – APIS ADULTS**<br><br>**10.89.1.2 REFINEMENT OPTIONS – APIS LARVAE**<br><br>**10.89.1.3 REFINEMENT OPTIONS – NON-APIS ADULTS**<br><br>10.89.1.3.1 Exposure<br><br>10.89.1.3.2 Effects<br><br>10.89.1.3.3 Risk Characterization (Estimation)<br><br>**10.8.19.4 REFINEMENT OPTIONS – NON-APIS LARVAE**<br><br>10.89.1.4.1 Exposure<br><br>10.8.19.4.2 Effects<br><br>10.89.1.4.3 Risk Characterization (Estimation) | |

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| 10.8.2~~10~~ SOIL OR SEED TREATMENT APPLICATION FOR SYSTEMIC SUBSTANCES (ALSO INCLUDING TRUNK INJECTION)<br><br>**10.8.2~~10~~.1 EXPOSURE ~~CHARACTERIZATION~~ – APIS AND NON-APIS**<br><br>**10.8.2~~10~~.2 EFFECT ~~CHARACTERIZATION~~ – ADULT APIS**<br><br>**10.8.2~~10~~.3 RISK CHARACTERIZATION (ESTIMATION)**<br><br>10.9~~11~~ CONCLUSIONS ON THE RISKS AND RECOMMENDATIONS<br><br>10.10~~12~~ RECOMMENDING RISK MITIGATION MEASURES<br><br>10.11~~13~~ ADDITIONAL TOOLS IN SUPPORT OF RISK ASSESSMENT AND TO INFORM RISK MANAGEMENT<br><br>**10.11~~13~~.1 MODELING TOOLS**<br><br>REFERENCES | |
| 3. **Section:** Footnotes<br><br>**Author:** Footnotes given for citations "USEPA, 1992" and "USEPA, 1998" have been removed since the footnotes were repeated in the reference list. Please check and confirm. | Correct, both USEPA 1992 and 1998 are listed in the references; therefore, they can be removed from the footnotes. |
| 4. **Section:** Text | • EPPO. 2010. Environmental risk assessment scheme for plant protection products: |

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| **Author**: The following references are cited in the text but the bibliographic details are not provided in the reference list. Please provide the same or advise whether the citations need to be removed.<br>• EC, 2001<br>• EPPO, 2010<br>• EC, 2010<br>• EFSA, 2009<br>• Thompson and Hunt, 1999<br>• Abbott et al. 1998 | Chapter 10, Honey bees. European and Mediterranean Plant Protection Organization (EPPO). Bulletin OEPP/EPPO Bulletin 40, 323–331.<br>• EC, 2010. Directive 91/414/EEC, Council Directive of 15 July 1991 concerning the placing of plant protection products on the market (91/414/EEC), Official Journal L 0414: 01.04.2010.<br>• EFSA 2009. European Food Safety Authority Guidance Document on Risk Assessment for Birds & Mammals on request from EFSA. EFSA Journal 2009; 7(12):1438. doi:10.2903/j.efsa.2009.1438. Avalable online: [ HYPERLINK "http://www.efsa.europa.eu" ]<br>• Thompson HM, Hunt LV. 1999. Extrapolating from honeybees to bumblebees in pesticide risk assessment. *Ecotoxicology*. 8:147–166.<br>• Abbott *et al*. 1998 should be corrected to read : Abbott *et al*. 2008 : Abbott, V.A., Nadeau, J.L., Higo, H.A. & Winston, M.L. 2008. Lethal and sublethal effects of imidacloprid on *Osmia lignaria* and clothianidin on *Megachile rotundata* (Hymenoptera: Megachilidae). Journal of Economic Entomology, 101, 784-796.<br>• |
| 5 **Section**: Text<br>.<br>**Author**: In Chapter 6, the term "problem formulation" is abbreviated and followed throughout the text as "PF." Please check and confirm whether the same can be applied in all chapters. | The term "problem formulation" is intended to have the same meaning throughout the document and can be referred to as "PF" |

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| 6. | Section: Text<br><br>**Author:** Please provide the expansions for the following abbreviations if deemed necessary.<br><br>• "EPPO"<br>• "LOC"<br>• "WIIS"<br>• "NOEC" | The definition for each of the acronyms is listed below and have been defined accordingly in the revised chapter:<br>EPPO: European and Mediterranean Plant Protection Organization.<br><br>LOC: Level of Concern<br><br>WIIS: Wildlife Incident Investigation Scheme<br><br>NOEC: no-observed effect concentration |
| 7. | Section: Soil and Seed Treatment Applications for Systemic Substances<br><br>**Author:** Please check the sentence "Figures 10-4 and 10-5 depict the [...]that are systemic in nature." for clarity. | The sentence should be revised to read: [T]he screening-level and refined risk assessment processes for soil/seed treatment-applied pesticides are depicted in Figures 10-4 and 10-5, respectively. Pesticides used as soil treatment or soil treatments are conservatively assumed to be systemically distributed to plant tissues as the plant develops. |
| 8. | Section: Refinement Options – *Apis* adults<br><br>**Author:** Please check and confirm whether "screening-level assessment" need to be replaced by "Tier 1 assessment" throughout the text. | Tier 1 and "screening-level assessment" are intended to be synonymous and are therefore interchangeable. |
| 9. | Section: Refinement Options---*Apis* Larvae<br><br>**Author:** Please check whether "dose/response relationship" need to be changed to "dose--response relationship." | Text corrected to read: dose-response relationship. |
| 10. | Section: Refinement Options---Non-*Apis* adults<br><br>**Author:** Please check the section number provided in the sentence "The same considerations with regard to the generation and use of these data apply ~~(see section~~ | Deleted: "(see section 2.1.1.1)" |

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| ~~2.1.1.1).~~" | |
| 11. **Section:** Text<br><br>**Author:** Please specify the section names to be referred while citing terms from other chapters as in "see Chapter 8, Hazard, Field for methods and advantages of field tests on non-*Apis* bees"; "[…]discussed in Chapter 8 (laboratory studies) and Chapter 9 (semi-field/full field studies)" throughout the text. | |
| 12. **Section:** References<br><br>**Author:** Please provide the editor names if deemed necessary for "Candolfi MP, Barrett KL, Campbell PJ, Forster R, Grandy N, Huet MC, Lewis G, Oomen PA, Schmuck R, Vogt H. 2001."" | Candolfi M.P., Barrett K.L., Campbell P.J., Forster R., Grandy N., Huet M.C., Lewis G., Oomen P.A., Schmuck R., Vogt H. 2001. Guidance document on regulatory testing and risk assessment procedures for plant protection products with non-target arthropods, in ESCORT 2 workshop (European Standard Characteristics of non-target arthropod Regulatory Testing), Wageningen, The Netherlands. SETAC Publication, 46 pp. |
| 13. **Section:** References<br><br>**Author:** Please provide the bibliographic details for "Gradish AE, Scott-Dupree CD, Cutler GC. 2011a." if published. | Reference has been updated to reflect that the article is now published: Gradish, A. E., C. D. Scott-Dupree, C. G. Cutler. 2012. Susceptibility of *Megachile rotunda* to insecticides use in wild blueberry production in Atlantic Canada. Journal of Pest. Science 85(1): 133 – 140. |
| 14. **Section:** References<br><br>**Author:** Please provide the last accessed date for "http://www.epa.gov/espp/consultation/ecorisk-overview.pdf" . | Reference updated to reflect last accessed on: 6/2/2012 |
| 15. **Section:** Table 10.1<br><br>**Author:** Please check whether the sentence "Population size and stability on the crop/in the boundaries" can be changed to "Population size and stability of the crop/in the boundaries" | Table 10.1 updated to read "Population size and stability within the crop and/or its boundaries" |

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| 16. **Section:** References<br><br>**Author:** In-text citations for the following references are not provided. Please check.<br><br>• Alix A, Lewis G. 2010<br>• Alix A, Bakker F, Barrett K, Brühl CA, Coulson M, Hoy S, Jansen JP, Jepson P, Lewis, Neumann P, Süßenbach D, van Vliet P. 2011<br>• Barrett K, Grandy N, Harrisson EG, Hassan S, Oomen P. (eds). 1994.<br>• Devillers J, Decourtye A, Budzinski H, Pham-Delègue MH, Cluzeau S, Maurin G. 2003<br>• Miles MJ, Alix A. 2011<br>• Vaughn M, Shepherd M, Kremen C, Black SH. 2007<br>• Winston M. 1987 | Citations for all but Winston 1987 have been accounted for in the text; the Winston 1987 reference has been deleted. |
| U.S. Environmental Protection Agency. 2012. User's guide for T-REX Residue EXposure model). Office of Pesticide Programs, Environment Division. Available online at: [ HYPERLINK "http://www.epa.gov/oppefed1/models/terrestrial/trex/t_rex_user_guid<br><br>U.S. Environmental Protection Agency. 2012*b*. Ecological Effects Test Guidelines. OPPTS 850.3030 Honey Bee Toxicity of Residues on Foliage. EPA 712-C-018. January 2012. [ HYPERLINK "http://www.regulations.gov/" \l "!documentDetail;D=EPA-HQ-OPPT-2009-0154-0017" ] | USEPA 2012 and USEPA 2012*b* also removed as a footnotes and added as a reference. |