Focal bird species for pesticide risk assessment: selection criteria for Switzerland

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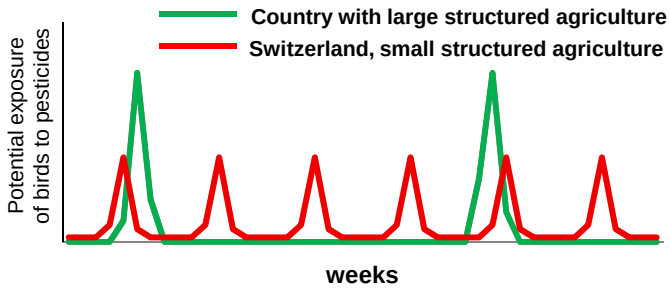
Introduction

Before pesticides are authorized, an environmental risk assessment for birds has to be performed. It is assumed that birds are exposed to pesticides through feeding on contaminated food. With the actual risk assessment procedure (Guidance Document SANCO/4145/2000-final and its revised version of 2010), a possible risk to birds is recognized for many pesticides if worst-case scenarios with model bird species are used. One possibility to refine the risk is to perform a recalculation with real bird species present in the treated culture at the time of treatment. Using these "focal species", with their own particular habitat preferences and feeding behaviour, a more realistic risk assessment can be reached.

Situation in Switzerland

Switzerland has its own singularities in terms of agricultural structure and avian biodiversity. The agricultural landscape is heterogeneous and small structured; the parcels of land are mostly between 0.8 and 2 ha, and different cultures may coexist in a tessellated landscape. These are interspaced with ecological compensation areas (>7%) and other untreated natural habitats (forests, nature reserves and borders of water bodies). Thus, due to the availability of alternative non-treated habitats, the exposure of birds after a pesticide application may be reduced. However, since different cultures are treated in different ways and at different times, the pesticide exposure could be more frequent and over a longer period of time. A possible exposure pattern of birds in Switzerland in comparison with a country with larger agricultural parcels is represented in the following figure:



Main references used

Maumary L., Vallotton L. & P. Knaus (2007): Die Vögel der Schweiz. Hrsg: Schweizer Vogelwarte, 848 S.

BAFU & BLW: Umwelziele Landwirtschaft. Umwelt-Wissen Nr. 0820. Bundesamt für Umwelt, Bern, 221 S.

Examples of literature for focal species in other countries:
- *UK*: Pascual et al 1998; Finch & Payne 2006; Crocker & Irving 1999
- *Sweden*: Wärnbäck 2006
- *Norway*: Hage et al 2009
- *Germany*: Seitz 1989

Approach to select focal species

1. Definition of the cultures/ application types for which focal species are determined. Provisional list:
Bare soils (H), seed treatments*, field crops early (F/I/H)*, field crops late (F/I)*, orchards, wine, vegetables, berries, ornamentals. (F= fungicides, I= insecticides, H= herbicides).
(* for S/W cereals, sugar beet, maize, potatoes, beans/peas and colza)

2. Listing of all possibly relevant species based on:
- ornithological literature from Switzerland,
- comparison with EU focal species
- comparison with other national focal species


Foto: M. Gandolfi

3. Final selection of focal species: performed by ACW in collaboration with several Swiss ornithology experts, based on the following **criteria**:

- strong association with the culture
- low body weight (= high feeding rate)
- high abundance*

(* since the risk assessment is primarily based on individuals, more abundant species are more likely to be exposed and more often exposed than rare and endangered species).

These three parameters will be used to rank the focal species suitability:

Focal species suitability index = f [culture association, abundance, body weight]

For each culture/ application type, the 2-3 most suitable species (one for each food type) will be selected.

Summary

- Aim: define the focal bird species in agricultural areas for specific risk assessments of pesticides in Switzerland

- Criteria for species selection: 1) strong association with culture, 2) low body weight, 3) high abundance

- Background: ornithological literature from Switzerland, and comparison with other countries and EU

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