European
Crop Protection

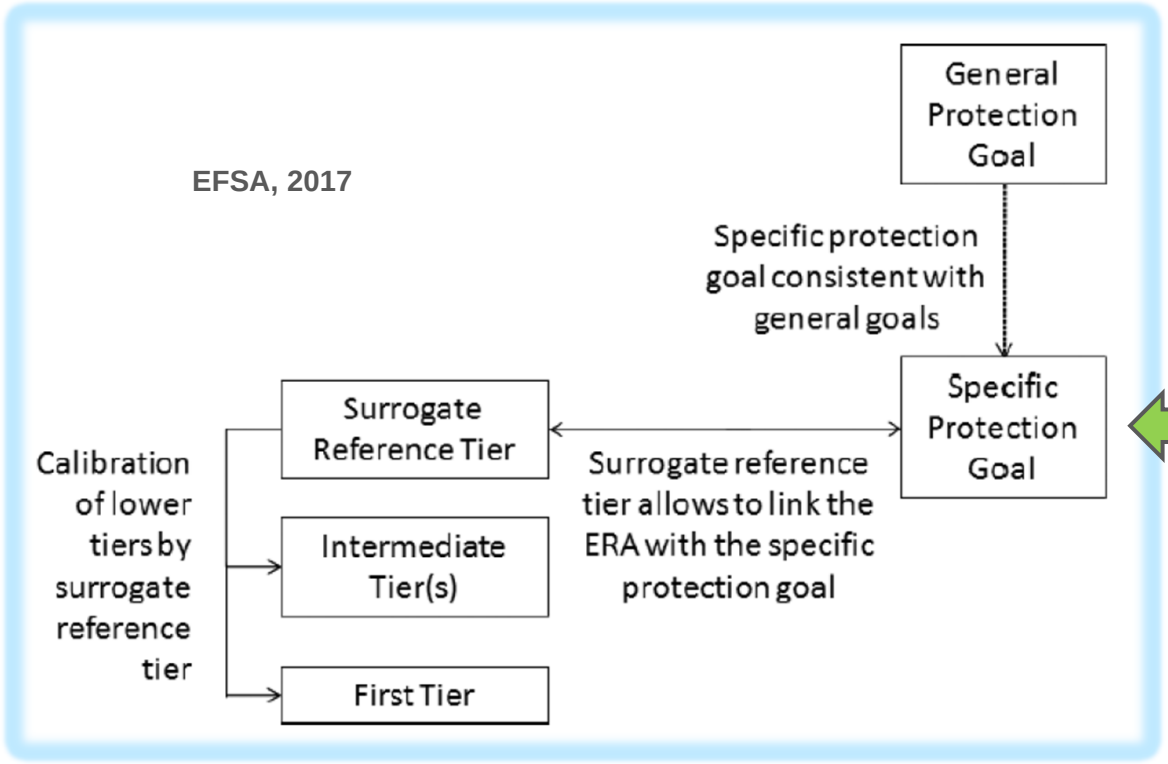
Calibrating Non-Target Arthropod (NTA) Lower Tier Assessment Factors

Frank Bakker[1], Saskia Aldershof[2], Axel Dinter[3], Charlotte Elston[4], Christoph Mayer[5], Ed Pilling[6], Gabe Weyman[7], Paul Neumann[8]

[1]Eurofins-MITOX, The Netherlands; [2]Bioresearch and Evaluation, The Netherlands; [3]FMC Agricultural Solutions, Germany; [4]Syngenta Ltd, UK; [5]BASF SE, Germany; [6]Dow AgroSciences, UK; [7]ADAMA AGRICULTURAL SOLUTIONS UK LTD., UK; [8]Bayer AG, Germany

SETAC Europe – Rome – May 16th 2018

How to calibrate lower tiers



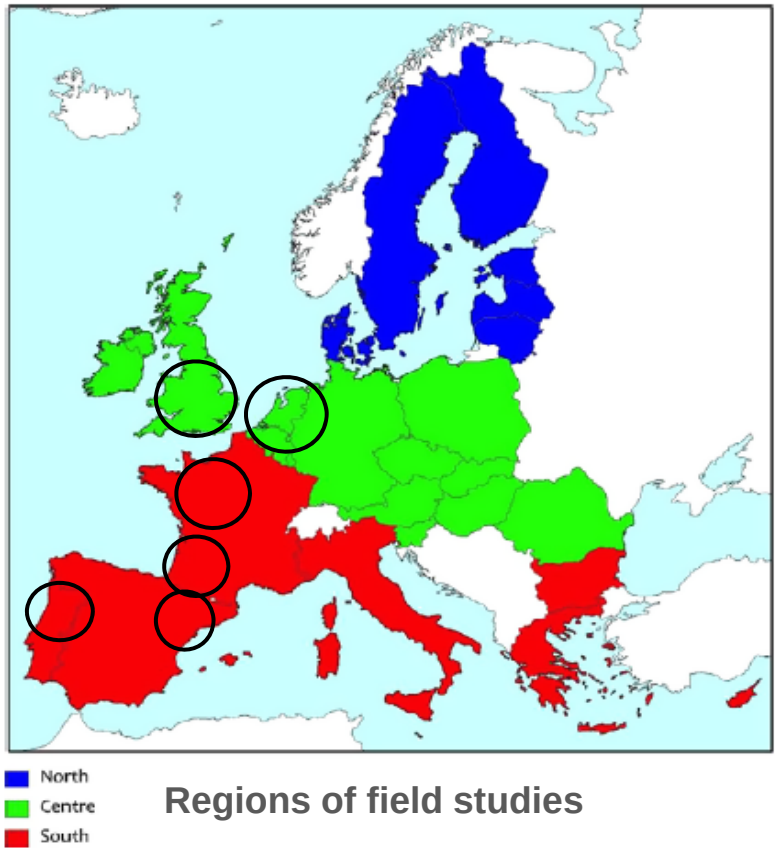
- **Calibrate lower tiers against the reference tier**
- **Endpoint in reference tier to cover the SPG**
  - Ecological entity, effect magnitude, effect duration, spatial scale

Lower tiers have to be able to predict unacceptable effects as observed in the reference tier

NTA Study Dataset

Study and data evaluation: Frank Bakker & Saskia Aldershof

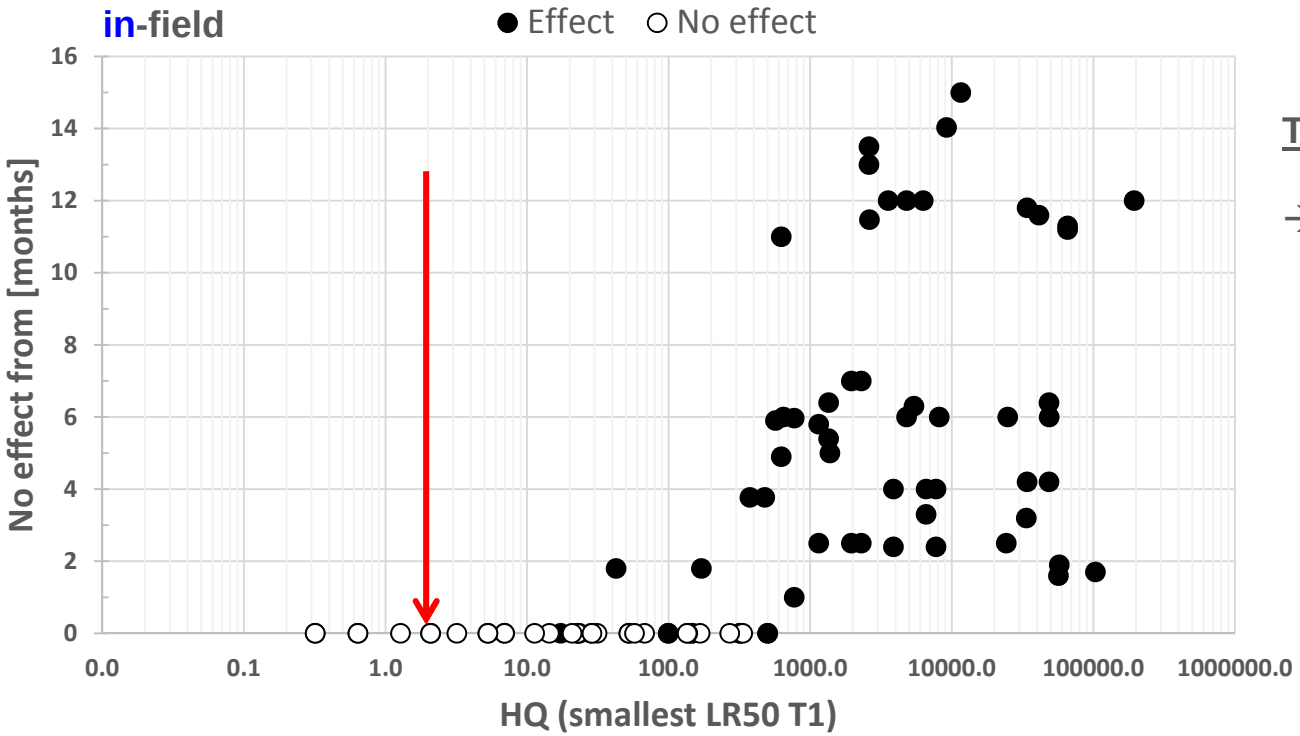
- 46 full-fauna NTA field studies
  - Arable fields
  - Orchards
  - Grassland (off-field studies)
- Different sites in Central & Southern Europe
- 20 active substances
  (Butenolide, Carbamate, Diamide, Neonicotinoid, Organophosphate, Pyrethroid, Spinosyn, Sulfoximine)
- 75 Predatory mite field studies
- HQ´s plotted against duration until recovery
  HQ = tested field rate divided by LR_{50} or ER_{50}



Regions of field studies

Results – Tier 1 NTA in-field

Tier 1 in-field HQ based on most sensitive species and first assessment without effects



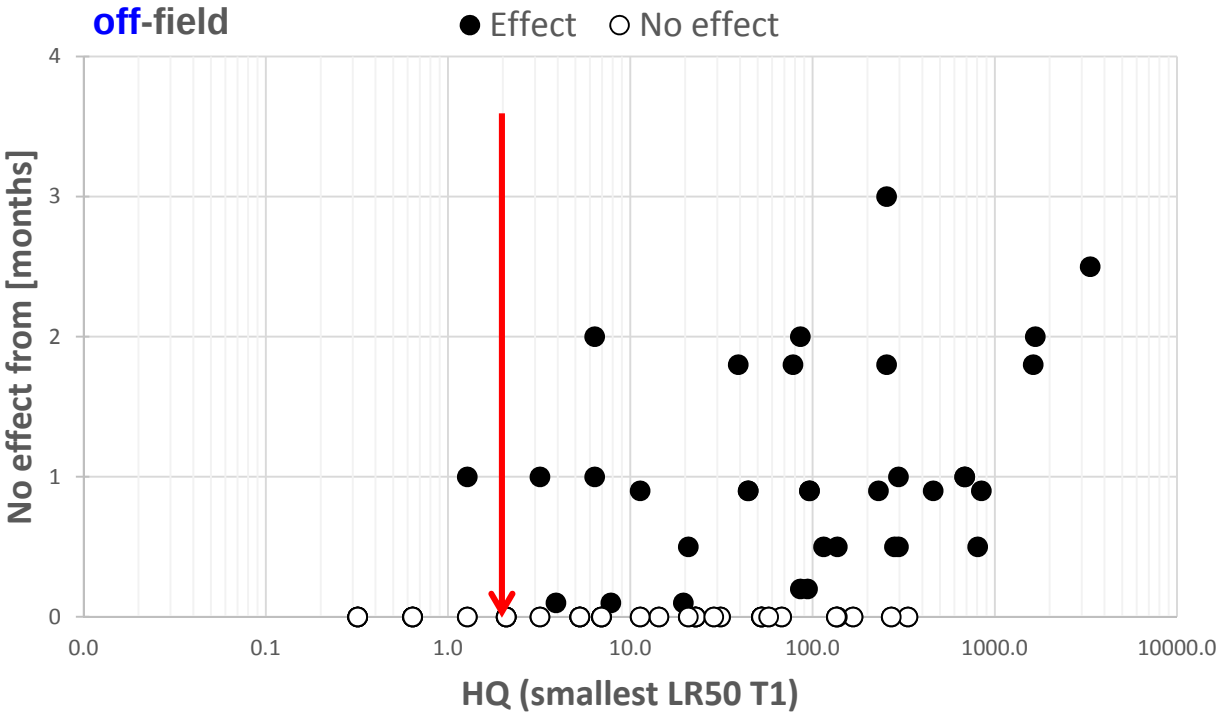
Tier 1 in-field HQ

→ Current trigger (HQ = 2)

=> Current in-field risk assessment based on Tier 1 studies is protective

Results – Tier 1 NTA off-field

Tier 1 off-field HQ based on most sensitive species and first assessment without effects



Tier 1 off-field HQ

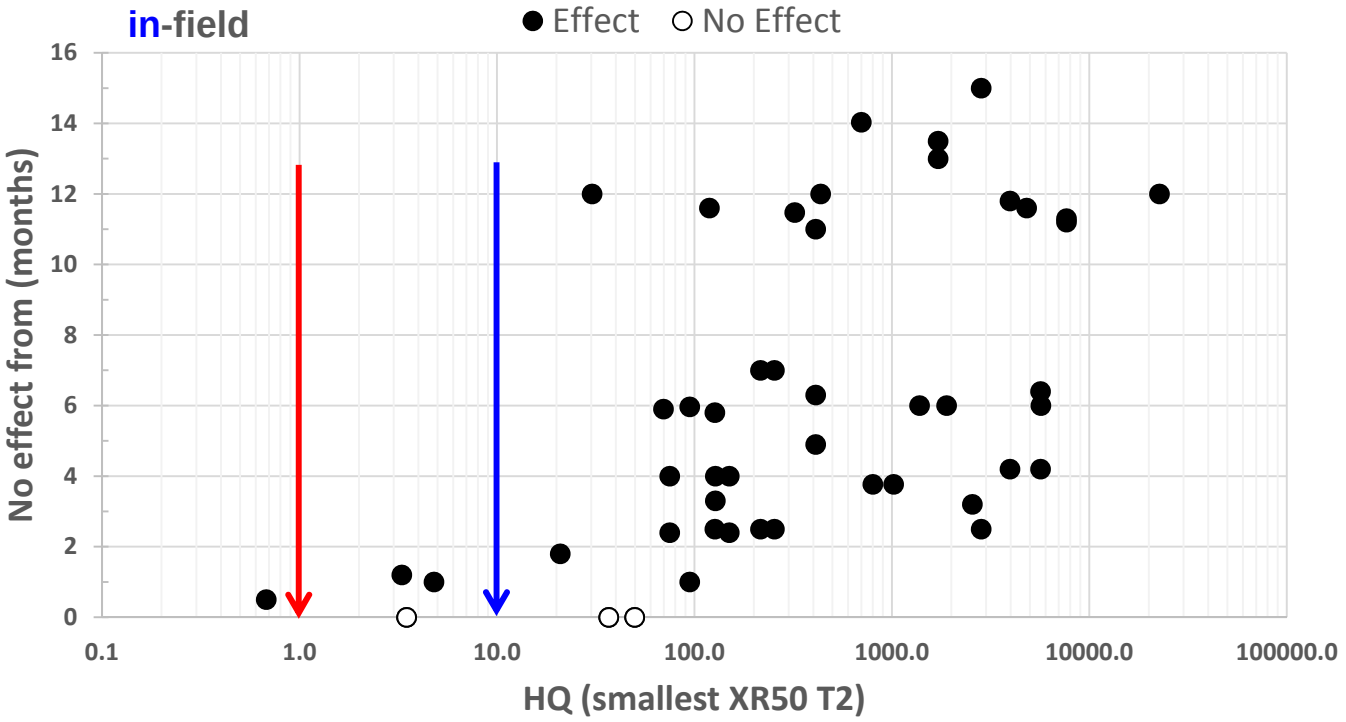
→ **Current trigger (HQ = 2)**

Only one out of 62 treatment groups showed an effect with a HQ below 2

=> Current off-field risk assessment based on Tier 1 studies is sufficiently protective

Results – Tier 2 NTA in-field

Tier 2 in-field HQ based on most sensitive species and first assessment without effects



Tier 2 in-field HQ

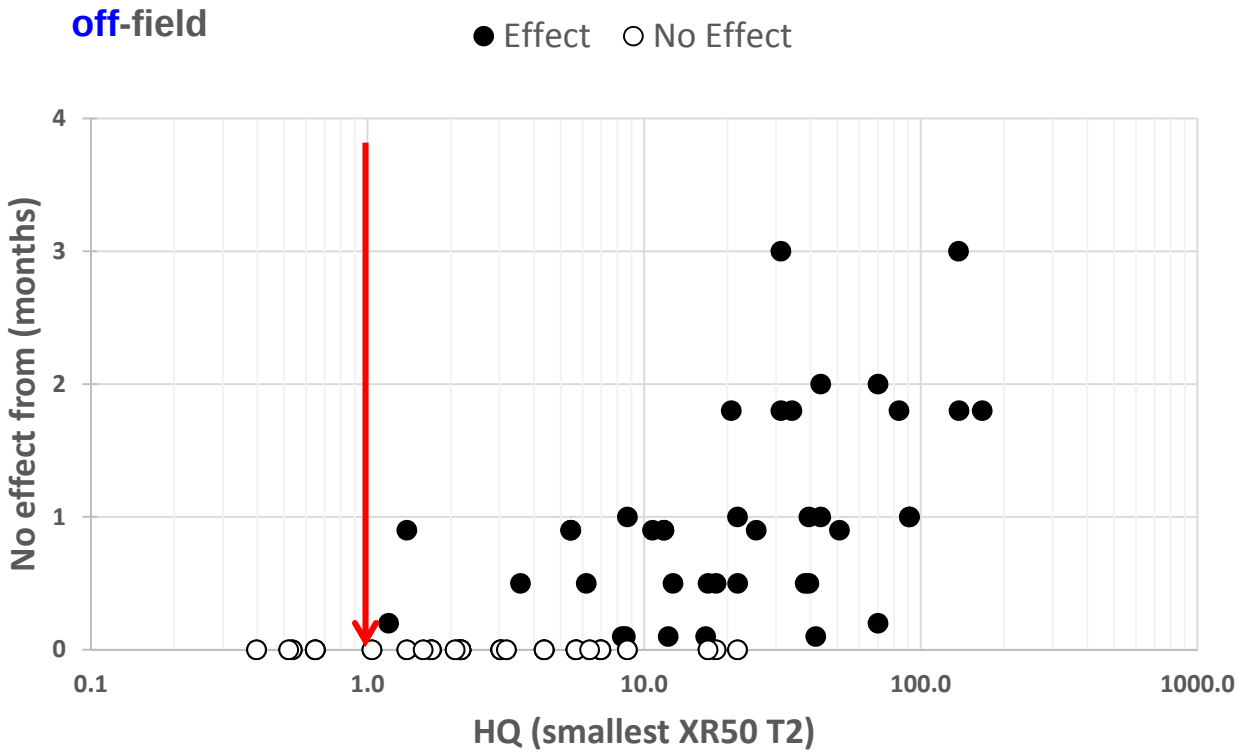
→ **Current trigger is equivalent to HQ = 1**

=> Current in-field risk assessment based on Tier 2 studies is protective

(also confirmed by the results of the predatory mite field studies)

Results – Tier 2 NTA off-field

Tier 2 off-field HQ based on most sensitive species and first assessment without effects (VDF: 10 and assessment factor: 5)



Tier 2 off-field HQ

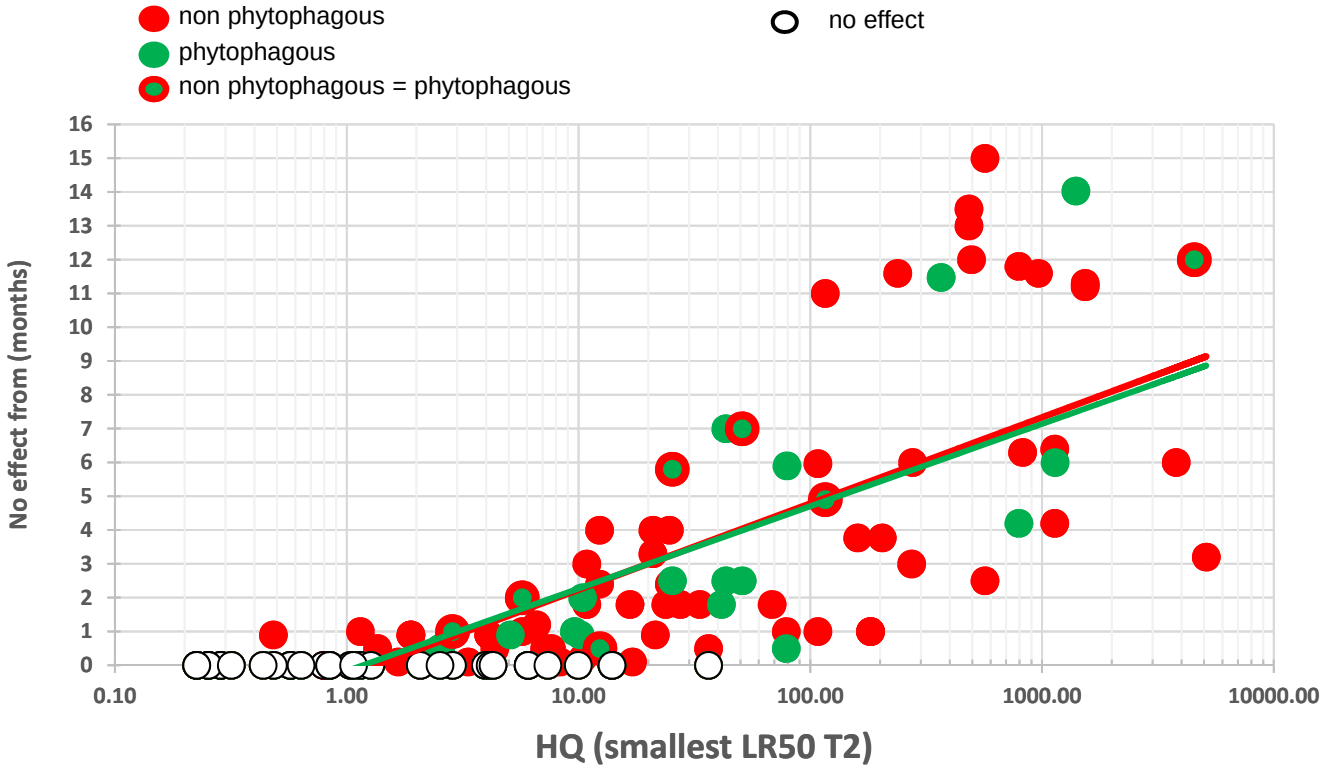
→ **VDF = 10**
→ **Assessment factor = 5**

→ **Current trigger is equivalent to HQ = 1**

=> Current off-field risk assessment based on Tier 2 studies is protective

Does the risk assessment cover herbivorous NTAs?

Tier 2 HQ based on most sensitive species and first assessment without effects



=> No indication of a systematically increased sensitivity

=> Calibration covers both groups

Discussion / Conclusion

- A **large data set** of NTA field and laboratory studies has been evaluated in this calibration
- Current **NTA Tier 1** risk assessment based on Tier 1 studies (*A. rhopalosiphi* & *T. pyri*) is **protective for in-field and the off-field habitats**
- Current **NTA Tier 2** risk assessment based on most sensitive endpoint from Tier 2 studies is **protective for in-field and the off-field habitats**
- The calibration **covers phytophagous and non-phytophagous** NTAs

Thank you very much!