

# Field-effect studies as a suitable method to assess effects of plant protection products on free-living common voles (*Microtus arvalis*): A case study with the fungicide iprodione

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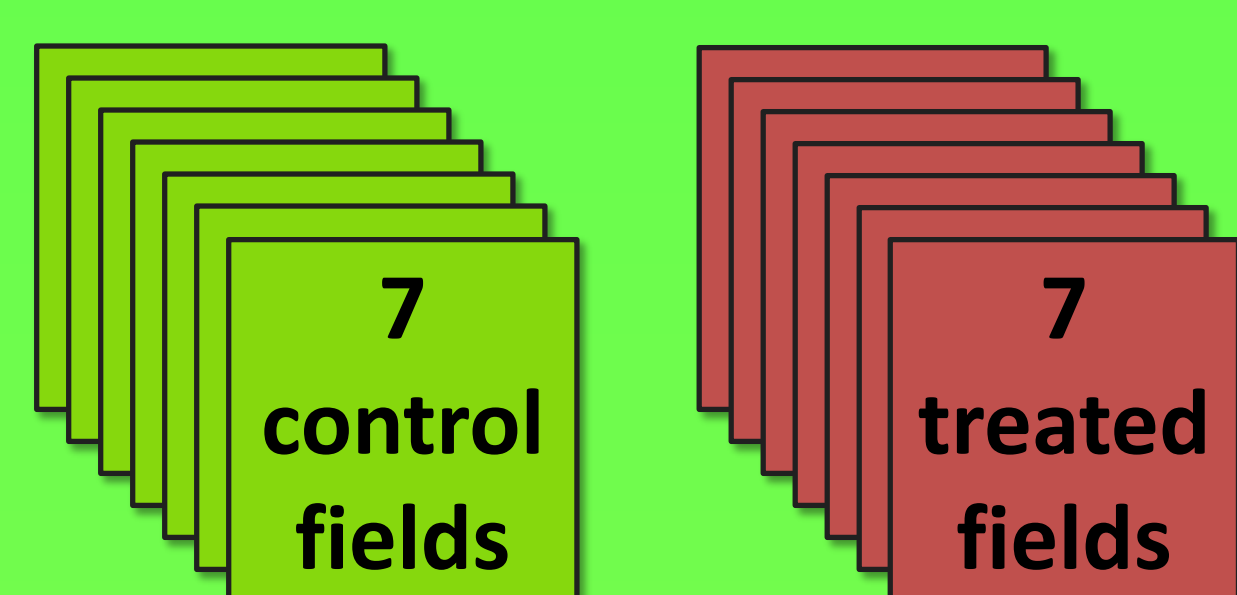
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## INTRODUCTION

- After foliar spray application of a plant protection product on crops, food sources of small mammals may be potentially contaminated with this product.
- Ingestion of treated food could possibly lead to effects on the population level.
- We tested if there were any long-term effects from repeated foliar spray applications of the fungicide iprodione on wild populations of the common vole (*Microtus arvalis*).

## MATERIAL & METHODS

- Location: North Rhine-Westfalia, Germany
- Study sites: commercially used grassland surrounded by hedges or woodland



**Treatment:**  
4x Rovral WG 75% (1125 g iprodione/ha)  
per treatment field every 7-13 days



Spray application of Rovral WG 75%



Mowing of a study field

- Area  $\geq 1$  ha
- Frequently mowed to ensure maximum exposure

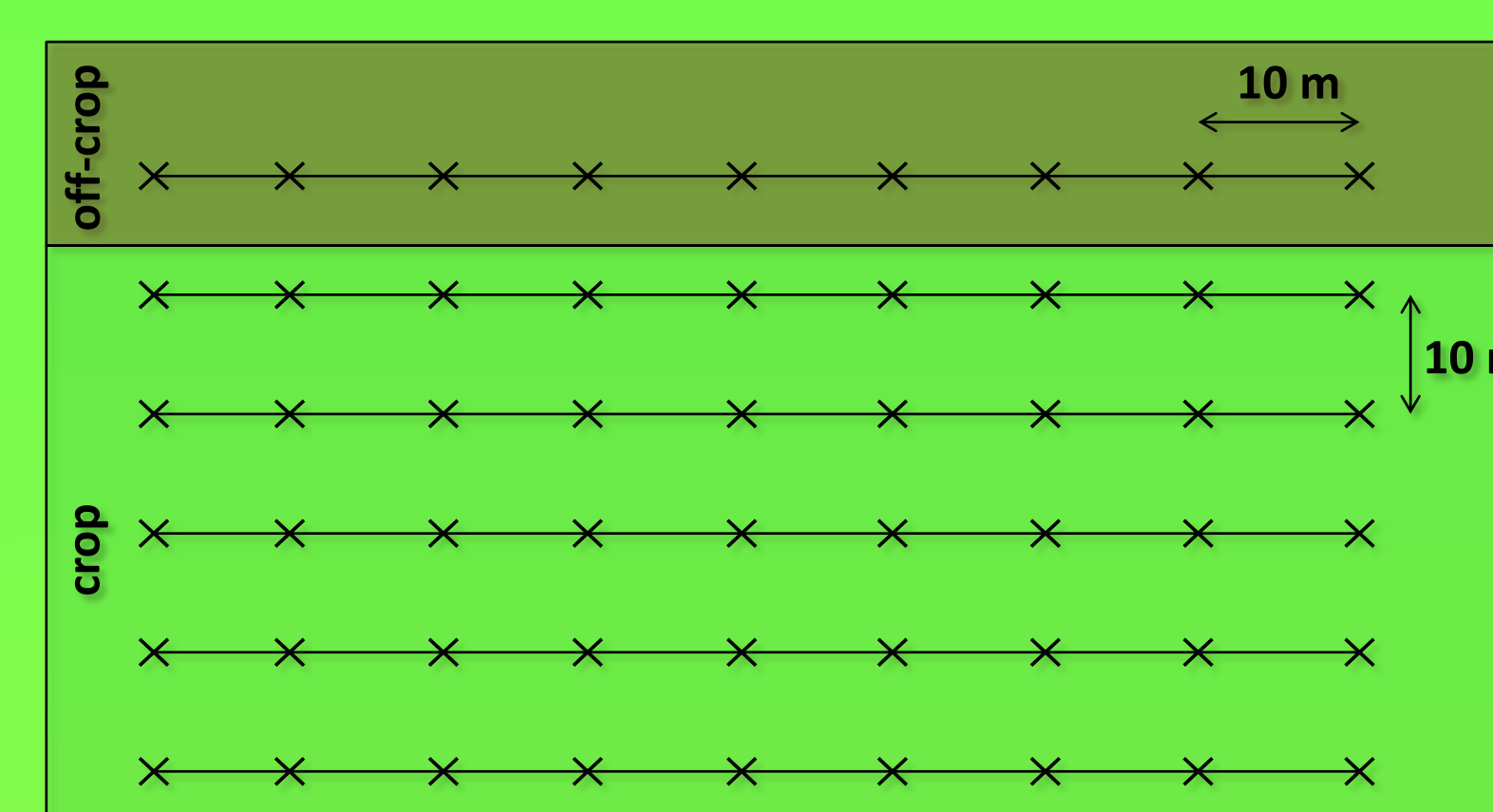


Ugglan-live-trap in the field



Ugglan-live-trap in the off-crop habitat

**Trapping:**  
60 Ugglan traps per study site  
(50 in-crop, 10 off-crop)



Sketch of a regularly shaped trapping grid (trap positions marked by X)



Individual PIT marking of a small mammal

from  
June

**Schedule:**  
9 trapping sessions per site  
(3 nights each)

until  
November

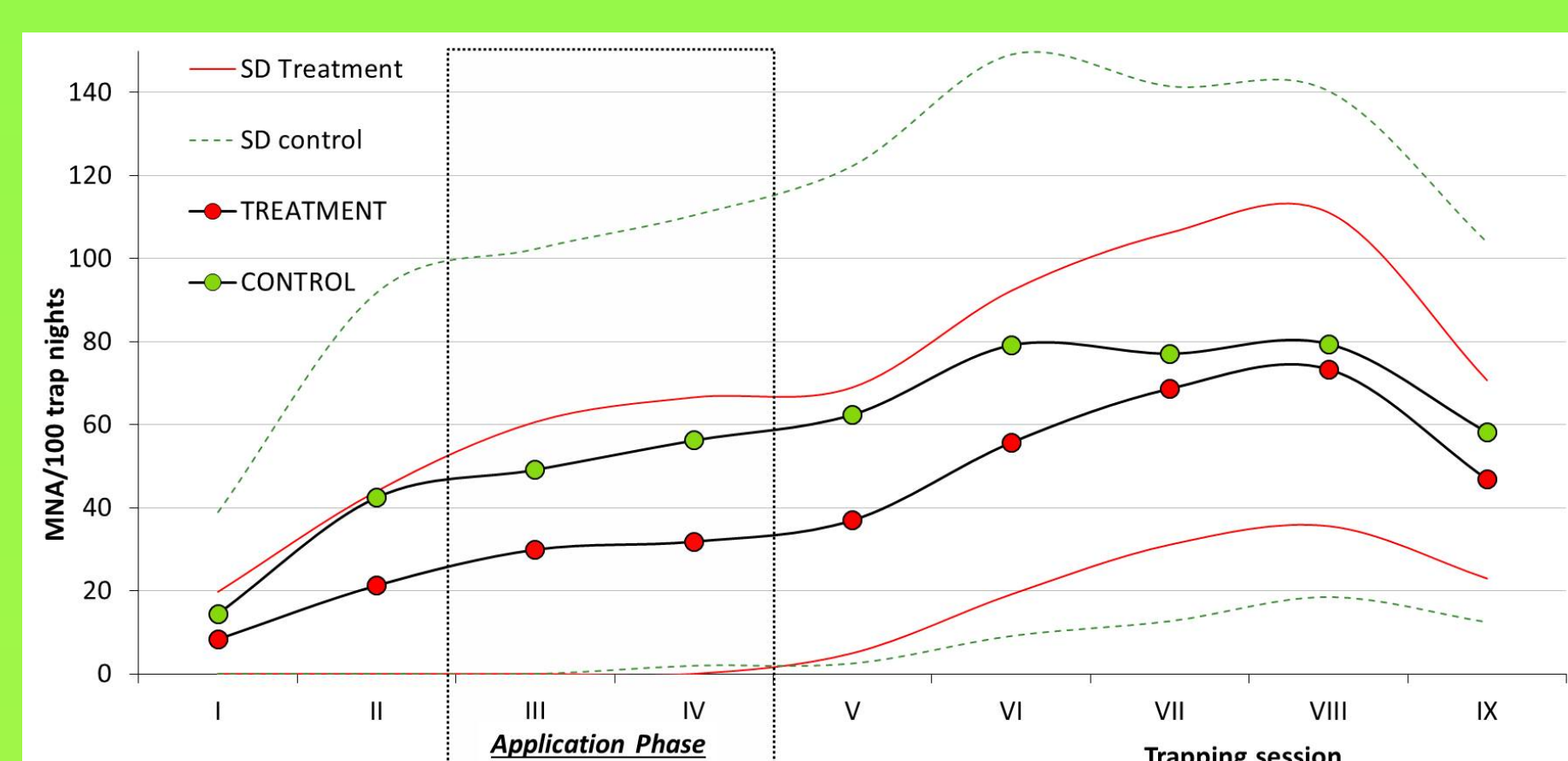


Checking individual PIT mark of a small mammal

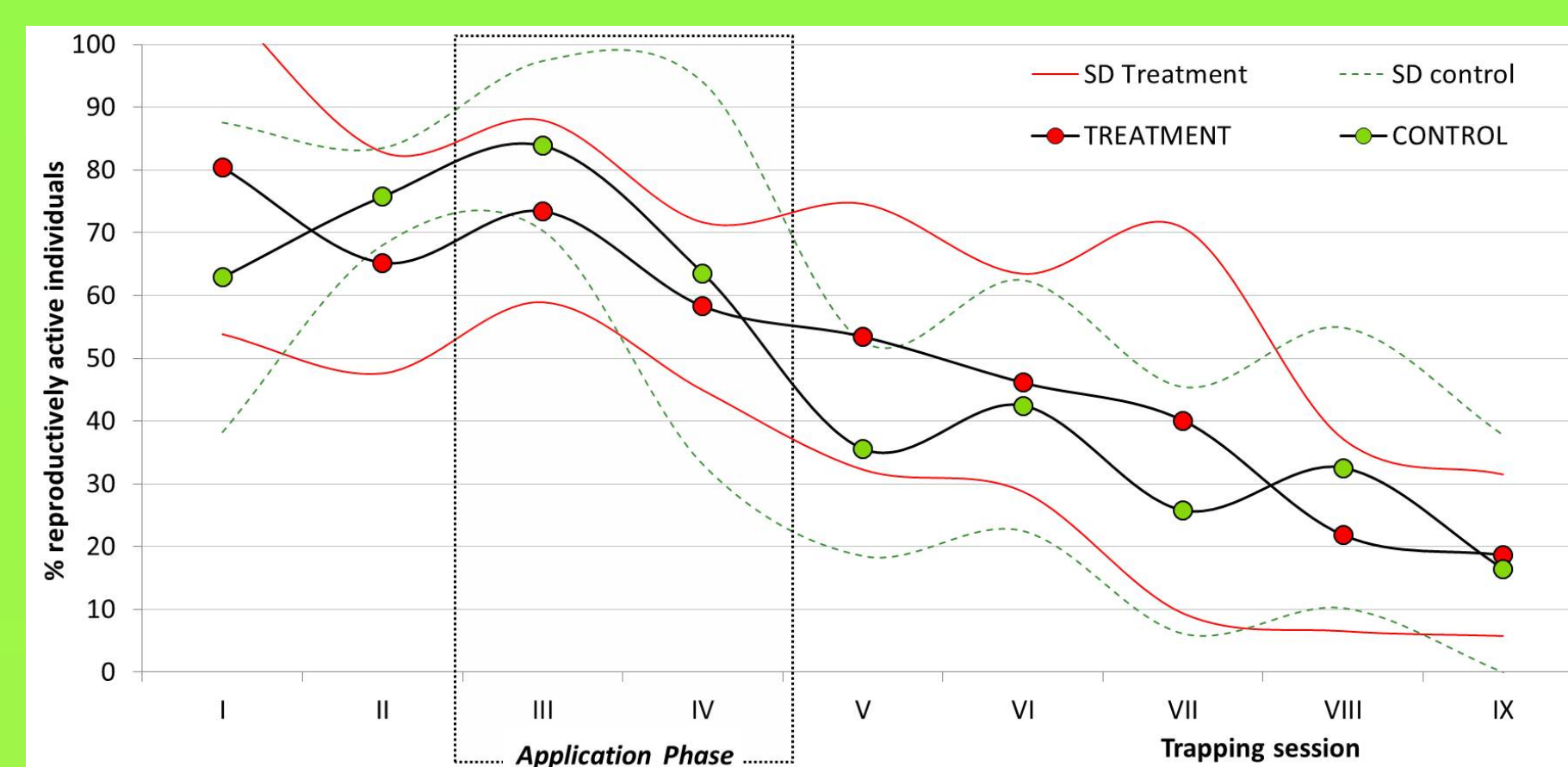


Data recording

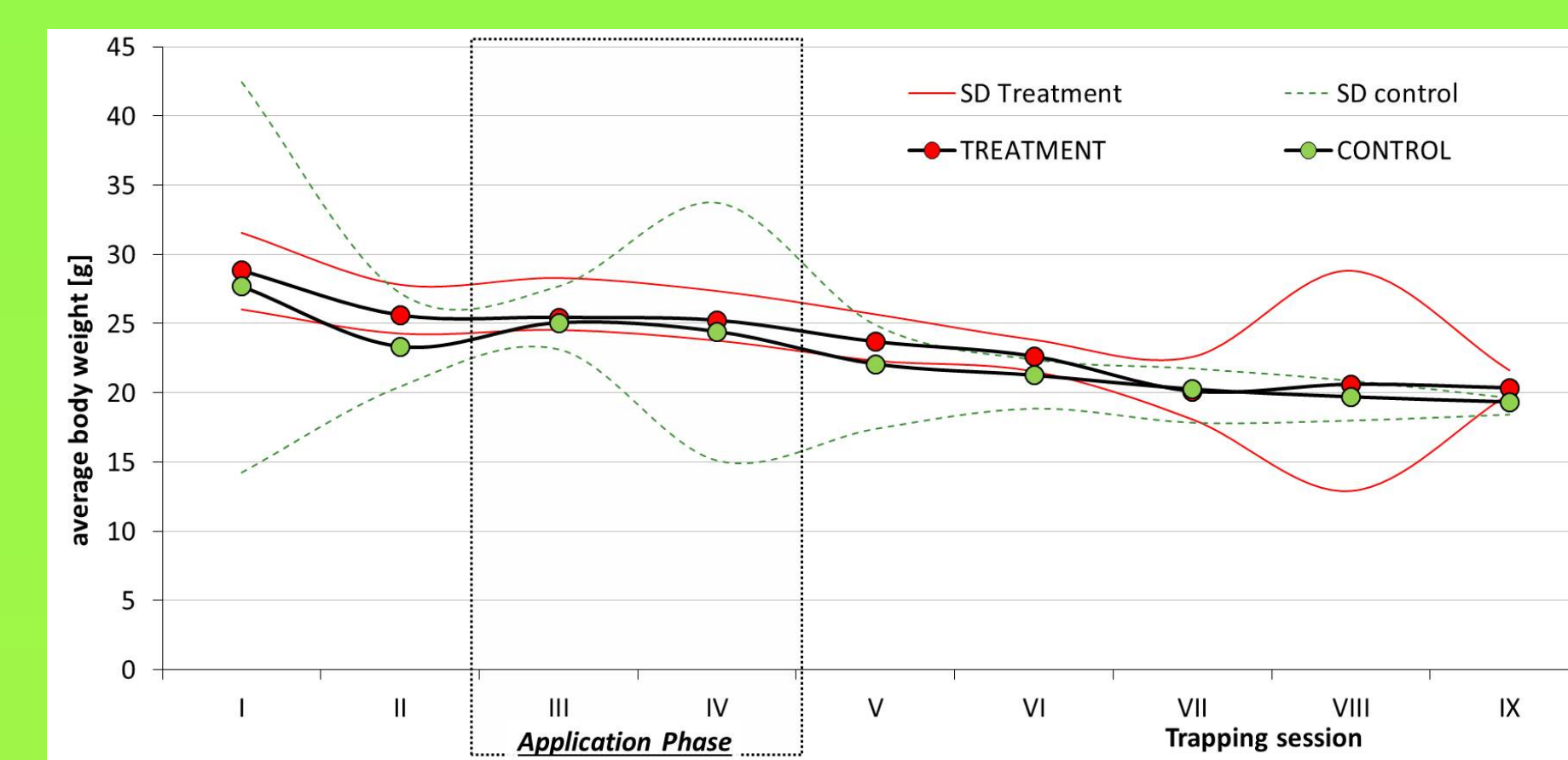
## RESULTS



Minimum number alive (MNA) of common voles on treatment and control sites



Percentage of reproductively active animals on treatment and control sites



Body weight of common voles on treatment and control sites

- 10 different small mammal species caught on study sites, but only the common vole captured in-crop in high numbers (i.e. 6649 individuals caught across the main reproductive season).
- 18164 captures of common voles (*Microtus arvalis*) in 22515 trap nights.
- MNA (individuals/per 100 trap nights) per trapping session for common voles ranged from 0.6 to 125.6 on treatment and from 0.0 to 178.9 on control sites. No significant effect of treatment detected.
- Body weight of adult common voles ranged between 15.5 g and 32.5 g on treatment and between 15.3 g and 32.3 g on control sites. No significant effect of treatment detected.
- Decrease of reproductively active individuals towards the autumn observed on both treatment and control sites.

## DISCUSSION & CONCLUSIONS

- ✓ No adverse effects of the iprodione containing formulation on the population of common voles in grassland fields observed in this study.
- ✓ Our recommendation is to conduct at least 2 trapping sessions before the first application and several trapping sessions after the application to cover the reproduction period of the common voles in the study area. If possible, time intervals between the trapping sessions should be kept similar.
- ✓ Field-effect studies allow the investigation of effects of plant protection products under real use conditions and thus, are a valuable tool for a higher tier risk assessment according to the EFSA Guidance Document for Birds and Mammals<sup>1</sup>

