Field study in apple orchards to assess exposure and effects of a fungicide on the European Rabbit (*Oryctolagus cuniculus*)

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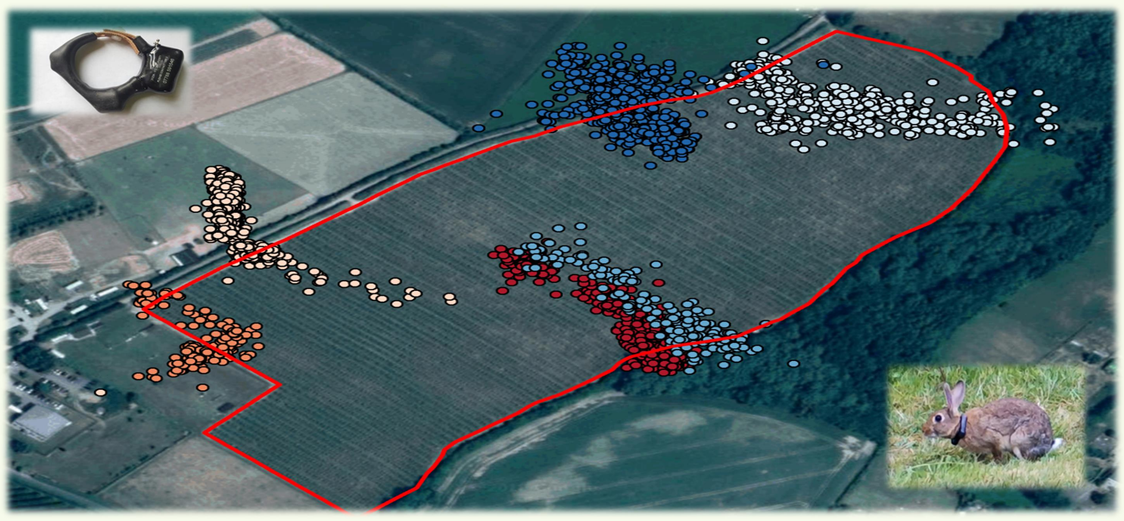
INTRODUCTION

The use of plant protection products may potentially have side-effects on non-target wildlife. Consequently, in the European Union the risk of each substance has to be assessed in a tiered process. This risk assessment involves theoretical conservative assumptions and standardised laboratory tests. The most realistic approach, however, are experiments in the field.

The presented study on the European Rabbit was performed in order to assess exposure and potential effects of a fungicide used in apple orchards.

Method 2: GPS-tracking of adult females

- In the 3 treatment orchards 15 adult females were tagged with GPS collars, which attempted to record the position of the rabbit every 5 minutes
- GPS data were retrieved without recapturing the rabbit, via a wireless connection to a receiver



- On average rabbits were tracked for 5.7 days

Method 3: Motion-triggered video cameras

- were used to record the number of juvenile and adult rabbits and thus allow to draw conclusions on the reproductive performance.
- In each study orchard 10 cameras were each run for ca. 48h per week over a period of 20 weeks resulting in 39,576 videos with at least one rabbit.

- Generalized linear mixed models were used to compare treatment and control orchards, in terms of the percentage of juveniles out of all rabbits and the number of observed juveniles.

STUDY GOALS

- assess abundance of rabbits in apple orchards over time
- record potential exposure of rabbits to the fungicide
- assess reproductive performance of rabbits in treatment orchards and control orchards

Method 1: Transect Counts

- were performed in order to assess the presence and behaviour of rabbits inside six study orchards (3 treatment / 3 control, located in Herefordshire UK).

The study orchard (white line) with the transect path (dotted line) and the observation area of a known size (light grey shaded).

- Conducted at night using a thermal imaging device.
- 10 sessions each lasting 3h with a count every 15min were performed in all study orchards.

  (total = 1014 transect counts)

- In addition the behaviour (foraging / not foraging) of rabbits was recorded during the transect counts in order to assess potential exposure.

RESULTS & CONCLUSIONS

- Rabbits were present in all orchards throughout the study.
- During transect counts, rabbits in orchards were seen to be foraging on most occasions. During GPS-tracking more than half of the location-fixes (mean per rabbit) were within the treated area. Also, ground vegetation was analysed for residues. Thus, it was very likely that rabbits were exposed (via ingestion) to the test substance.
- Juvenile rabbits were present in all orchards. The quality of data from the video-recordings allowed robust conclusions about the influence on the reproduction of rabbits.
- In this example no effects on reproduction were observed.

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