



# Long term effects of a herbicide on wild European rabbits - new methods for lagomorph field studies

## INTRODUCTION

According to EU regulations the potential risk of plant protection products to non-target wild life has to be assessed.

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In a long-term study under realistic field conditions European rabbits (*Oryctolagus cuniculus*) were exposed to a herbicide. We had chosen orchards in Herefordshire, UK, as they provide a stable habitat with short grass cover: the preferred food source of the rabbits. Warrens can be usually found in hedges surrounding the orchards.

We used several methods to achieve our study goals.

## STUDY GOAL: Presence of rabbits in the study orchards

### Method 1: Trapping and Tagging



- 5 treated and 5 control orchards with 50 traps each



- Capture-mark-recapture using RFID ear-tags

### Method 2: Automatic Ear-Tag Reader



- One reader uses 4 loop-antennas

- Continuous recording of tagged rabbits at their warrens



**Output:** Assessment of population size, individual health conditions and the length of presence (survival) of tagged rabbits

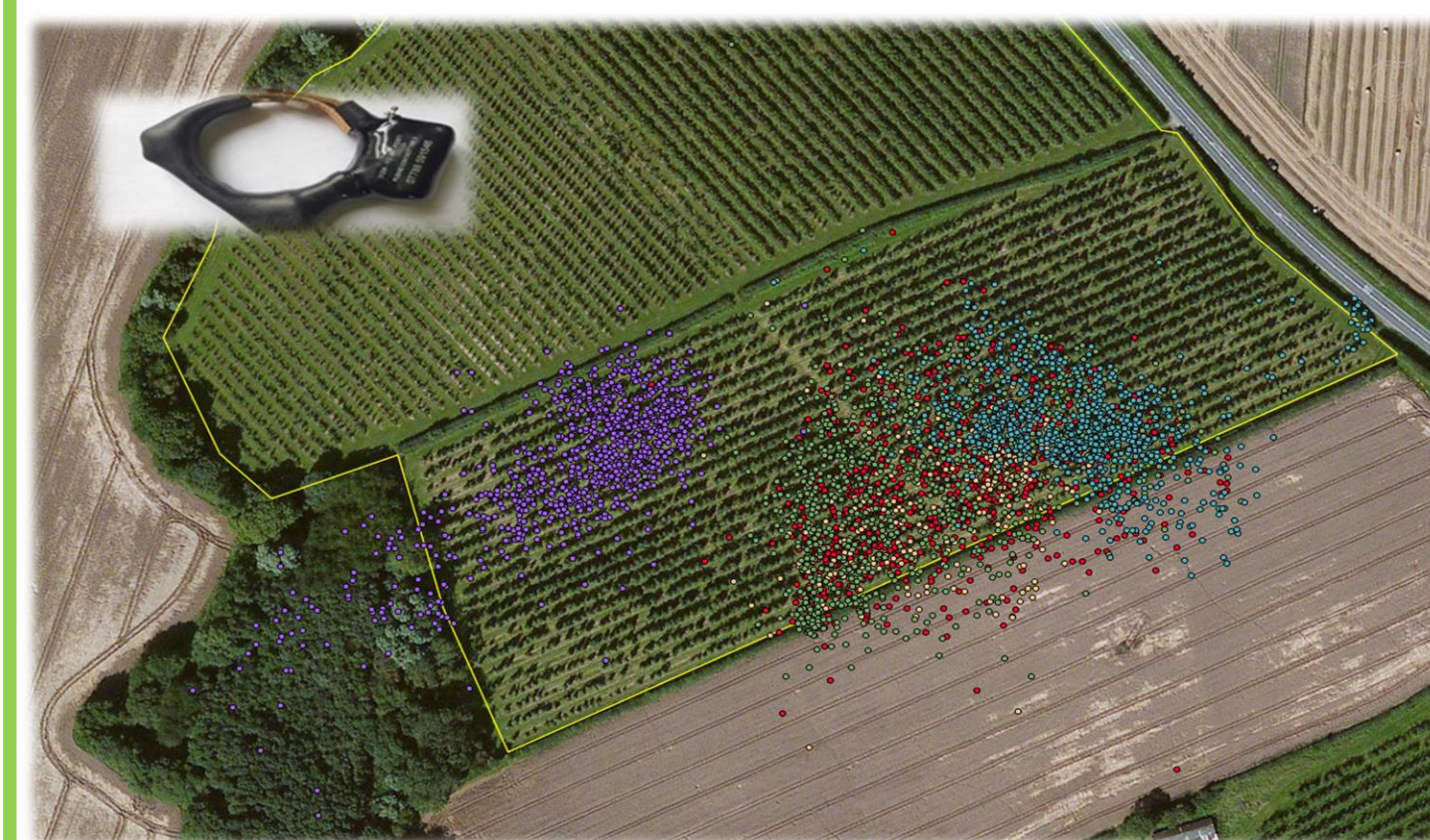
## STUDY GOAL: Exposure of rabbits to the test item

### Applications



- Two applications in November and January (each half-amount)

### Method 3: GPS-tracking



- At 5 treatment sites, 32 GPS collars took a rabbits position every 7 minutes for approx. 8 days

- Wireless data download



### Method 4: Observation



- Counting adult and juvenile rabbits at night by thermal imaging

- A 4h-session before and 3 sessions after application

**Output:** Showing exposure of rabbits by recording their daily movements and observing them feeding in the treated orchards

## STUDY GOAL: Juvenile rabbits - potential effects on reproduction after applications

### Method 5: Motion-triggered cameras



- Five motion-triggered cameras in each study-orchards set for about 6 weeks

- Each camera recording 24h for about 4 days a week



- Counting the maximum number of adult and juvenile rabbits captured on video and comparing the results from treated and control orchards

**Output:** After the parent generation has been exposed to the test item, observing juveniles will indicate reproductive success

## CONCLUSIONS

- To observe rabbit populations over a longer period of time, a variety of field methods were successfully employed
- Rabbits were exposed to the test item by regularly feeding on contaminated grass
- Rabbits did not disappear (mortality or food avoidance) from the orchards after the applications
- After the applications rabbits were still found reproducing on control and on the treated fields



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