

Modelling chronic toxicity in terrestrial mammals

(Syngenta / BBSRC Industrial CASE studentship)

Project description: Small mammals (e.g. field voles, wood mice) contribute to ecosystem services both in their own right and as prey for iconic predators such as birds of prey. In order to maintain food security while preserving ecosystem services it is important to understand the mechanisms of how different pesticide exposure patterns lead to ecotoxicological effects under field conditions.

We will develop a toxicokinetic-toxicodynamic (TKTD) model to better understand, simulate and predict toxic effects of pesticides on wildlife, in particular effects on growth of small mammals. Existing laboratory toxicity studies with rats and mice will be used to develop and calibrate the model. The model aims to achieve two objectives:

- A. *In-vitro* to *in-vivo* toxicity extrapolation for effects on growth
- B. Assess the effects of different exposure patterns in the field for risk assessment

In this PhD you will:

- Develop, calibrate and test a computer model to predict toxicity in small mammals
- Perform *in-vitro* laboratory tests on cell cultures with pesticides
- Use the computer model to perform ecological risk assessment of wildlife

Host institution: The PhD student will be based at the Environment Department at the University of York (UoY) and the project will be led by Dr Roman Ashauer (main supervisor). The Environment Department has a reputation for excellence and innovation; the impact of our research in ecology and environmental science is ranked 2nd in the UK and 17th globally. The environmental fate and effects of pollutants is a core area of research.

Industry partner: The PhD student will spend at least three months in placements at Syngenta (Product Safety, Jealott's Hill International Research Centre) or other project partners. Dr Pernille Thorbek from Syngenta will be the industry co-supervisor.

Training provided in: regulatory pesticide risk assessment, ecotoxicology, ecological modelling, laboratory toxicity studies and advanced generic & transferable skills.

Start date & duration: The project will start on 1 December 2016 (or earlier) and last four years.

Funding & eligibility: The studentship will cover a stipend of approximately 16000 GBP per year (incl. industry supplement). Applicants must have obtained, or be about to obtain, a First or Upper Second Class UK Honours degree, or the equivalent qualifications gained outside the UK in an appropriate area of science or technology. Applicants must be a UK or EU candidate who has resided in the UK for at least 3 years by 30 Nov 2016 if starting the PhD on 1 Dec 2016.

Application: Please include a CV, the names and addresses of two academic referees and a covering letter. In the covering letter (max. 1 side A4) please describe any experience and skills you feel make you a suitable candidate for the position and why you are interested in the project. Please email your application to roman.ashauer@york.ac.uk. Application remains open until the position is filled.

More information about us: www.york.ac.uk/environment & www.ecotoxmodels.org