



Nottingham Trent
University



ROTHAMSTED
RESEARCH

Cross Kingdom effects of herbicides on soil microbial communities

PhD student

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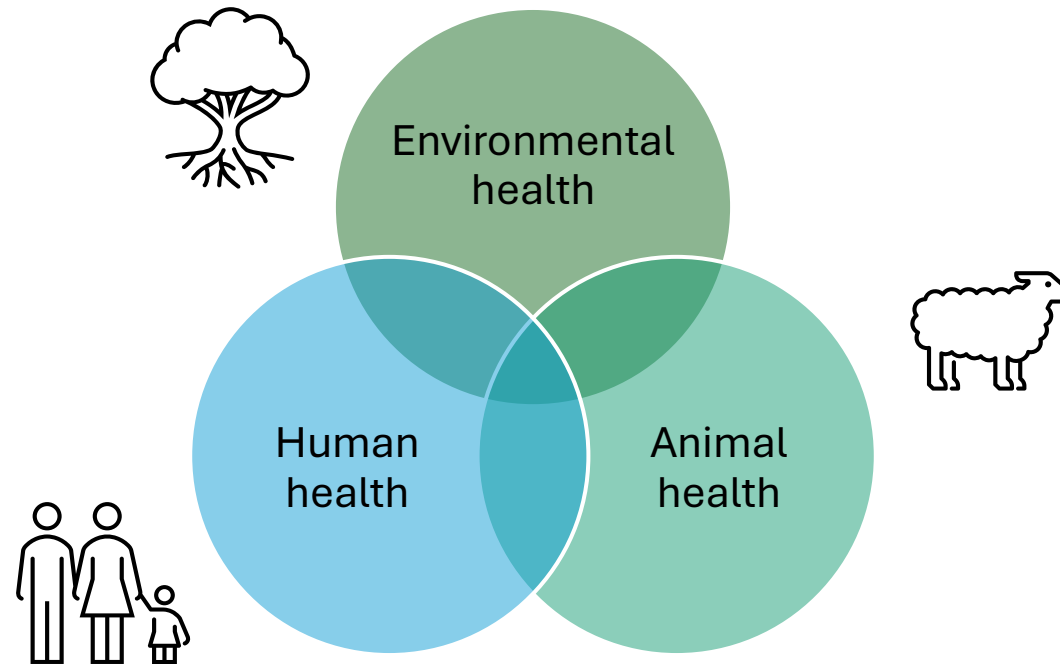
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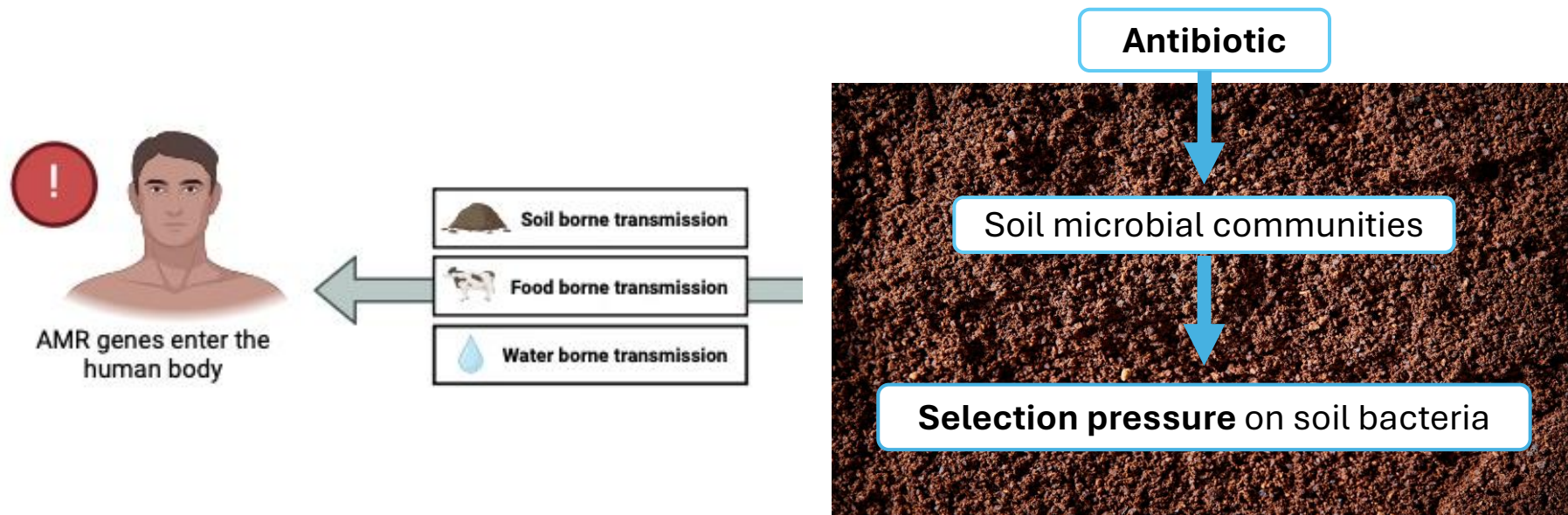
Project background:

- The development of herbicides has been essential for enhancing global agricultural productivity.
- This project aligns closely with the **One Health** agenda.



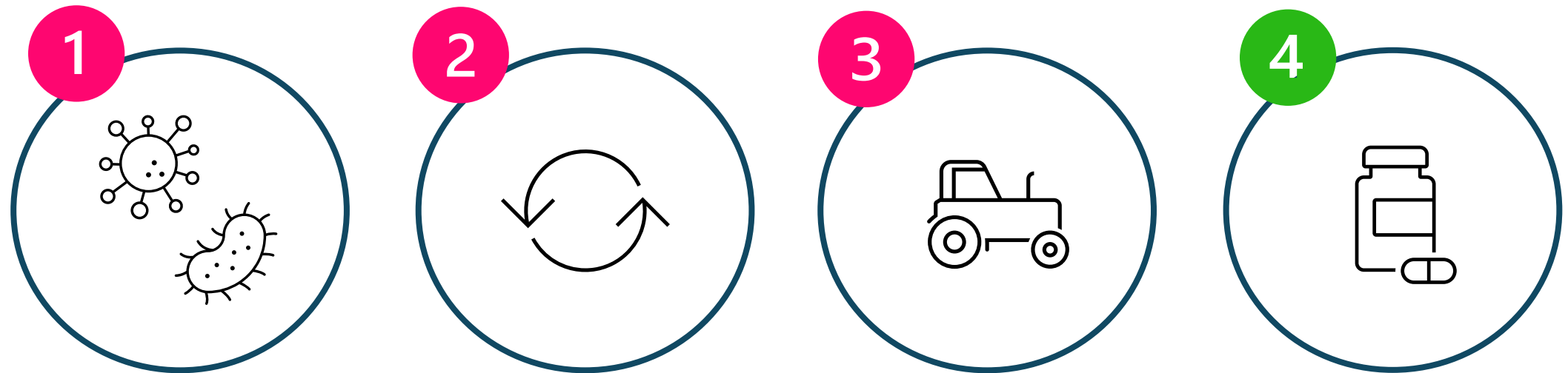
Project background:

- Soil health plays a crucial role in nutrient cycling, the degradation of organic matter, and overall fertility.
- Out of the approximately 29 essential elements for plants, 18 are obtained from the soil.
- Soil-residual herbicides can drive the evolution of herbicide resistance in both plants and microbes.

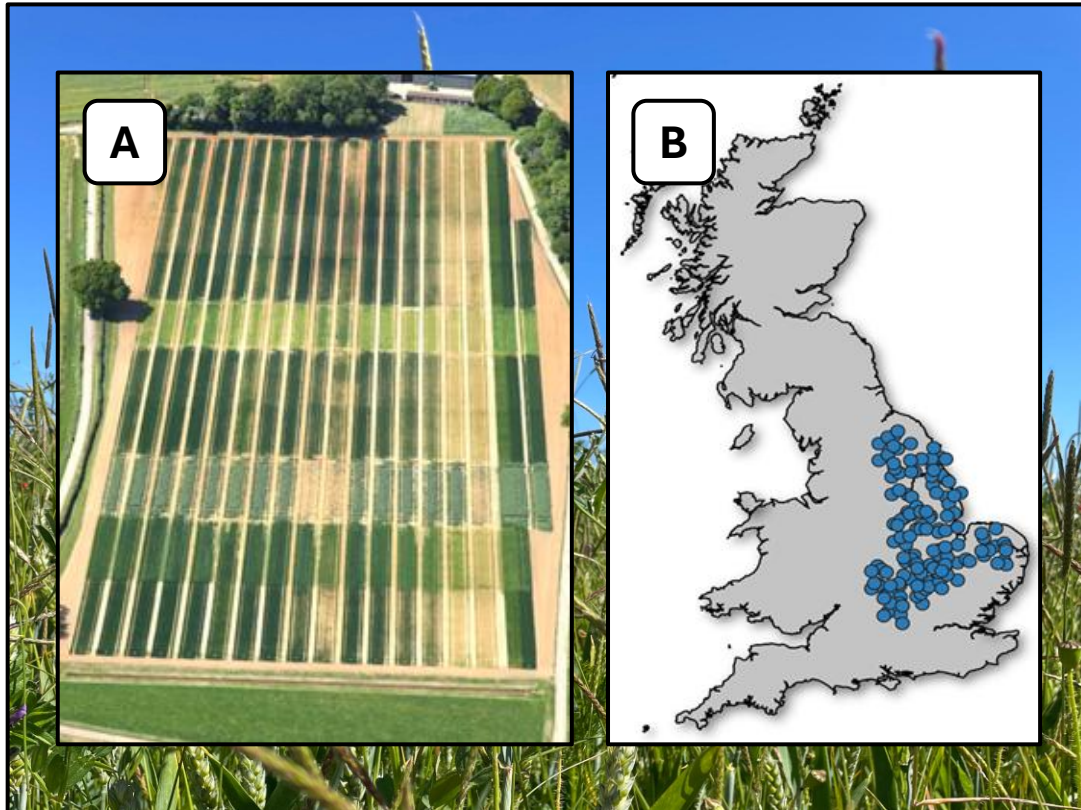


Project aim and objectives:

The aim of this study is to gain a comprehensive understanding of how herbicides influence Anti-Microbial Resistance (AMR) in soil microbes.



Study sites:



- **Blackgrass** abundance in wheat fields
- **Broadbalk** field experiment at Rothamsted
- **Black-grass resistance initiative (BGRI)** network of farms

Outcomes

- Understand the mechanisms by which herbicides may contribute to the proliferation of AMR in soil microbial communities.
- Understand how herbicide application alters the composition and diversity of soil microbial communities.
- Evaluate the potential **ecological risks** associated with herbicide use in relation to AMR.
- Evaluate the potential **human health risks** associated with herbicide use in relation to AMR.



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Thank you!

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