Imperial College London

THE GAME CONSERVANCY TRUST

ROTHAMSTED RESEARCH

Re-bugging the system:

Promoting Adoption of Alternative Pest Management Strategies in Field Crop Systems

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RURAL ECONOMY AND LAND USE

RESEARCH COUNCILS UK

Motivation for the proposal

- Numerous Bio-control techniques (of insect pests) applicable for UK agriculture.
- Few have seen commercial scale adoption to displace agro-chemical use.
- Reasons for lack of adoption?
  - Economic
  - Technical
  - or both?
- Total value of our award is £1 million

Project Design

- Interdisciplinary examination and demonstration. Scientists and economists working together.
- Economics of technological adoption –
  - Path dependency and technological ‘lock-in’
  - The problem of ‘jointness’
  - The role of risk in technological switch decisions
  - And the importance of differential cost structures
- Guiding experimental and dissemination design.
- Design of policies, contracts or other instruments to promote the commercial adoption – science guiding economics and policy

Technological Focus

- Two potentially complementary techniques:
  - Habitat management for the promotion of natural enemies.
  - Semiochemical (Push-Pull) techniques to manipulate predator and pest behaviour.
- Examination in UK Field-Scale cereal crop systems.
- 20 experimental sites across 4 seasons.
- Examination of technical efficacy at a range of spatial scales from glass-house, field and farm levels and analysing dynamic issues of adoption.

Outputs

- Project output is expected to include:
- Examination of the efficacy and economic efficiency of the 2 technologies jointly and in isolation.
- A Blueprint for interdisciplinary effort to promote the adoption of technologies which are beneficial to the farmer and the wider society.
- A bio-economic model incorporating scaling and issues of non-linearities of emergence to inform private adoption and optimal public policy design