



*The PROTECTS project team (l to r: Blanaid White, Jane Stout, Dara Stanley, Aoife Delaney, Elena Zioga, Linzi Thompson, Merissa Cullen, Jim Carolan and Matt Saunders. Not pictured: Alina Primerov, Mathavan Vickneswaran)*

### How is PROTECTS structured?

- Task 1: Review pesticide usage and best practice in Ireland
- Task 2: Developing tools for pesticide detection in soils and flowers
- Task 3: Assessing hazards of pesticide use in Ireland for bees
- Task 4: Developing soil risk assessment scenarios and recommendations for a soil monitoring programme
- Task 5: Mapping the road to mitigating pesticide effects on ecosystem services

## Who We Are

### About Us

The PROTECTS Project is large-scale research project funded by the Department of Agriculture Food and the Marine. It is a collaboration between UCD, TCD, DCU, Maynooth University and Teagasc.



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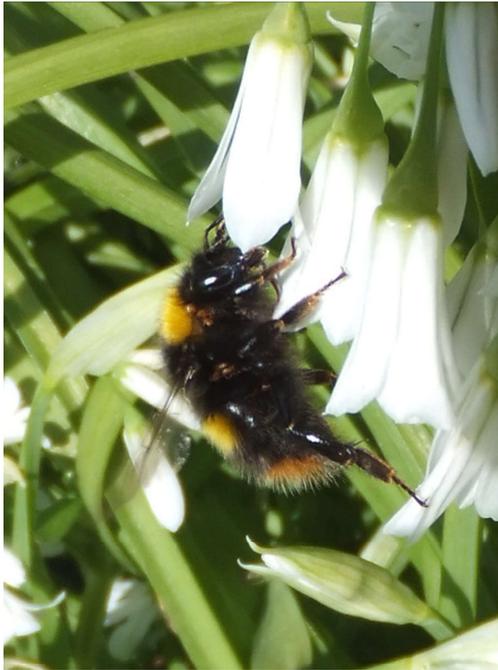


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# PROTECTS PROJECT

*Protecting terrestrial ecosystems through sustainable pesticide use*



*Bumblebees are important pollinators of both wild plants and crops, but can be impacted by pesticide use*

## What is PROTECTS?

### **Sustainable pesticide use and the environment....**

Pesticides are an important component of modern agricultural production. However, pesticide use also has implications for human health, food residues and the environment. Then aim of the PROTECTS project is to investigate pesticide effects on ecosystem services in Ireland, focusing on soils and pollinators.

### **What pesticides are used in Ireland?**

We will work with DAFM to summarise current patterns in pesticide usage in Ireland across all agricultural sectors (grassland, arable and horticulture)

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*“PROTECTS aims to provide baseline information to build towards mitigating the effects of pesticide use on ecosystems in Ireland”*

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### **Pesticide residues in soils and flowers**

When pesticides are used, they can be found as residues in soils where they may build up over time. These pesticides may also then be taken up by plants and occur in the nectar and pollen they produce causing a potential hazard for pollinators. Within PROTECTS we will develop a new sensor and bioassays for testing the toxicity of soils, nectar and pollen, and carry out a large scale survey of pesticide residues in these matrices in Ireland.



*Healthy soils are essential in sustainable agricultural production, but can be reservoirs of pesticide residues*

### **Pesticides and bees**

Pesticides are used to control pests, but can also come into contact with other beneficial species, for example bees that may be pollinating crops. We will investigate whether the most widely used pesticides in Ireland (in particular fungicides and herbicides) pose a hazard to pollinating insects, and in particular bumblebees

### **Recommendations**

Through PROTECTS we will

- a) develop risk assessment scenarios for pesticides in Irish soils and recommendations for a national soil monitoring programme and
- b) provide recommendations and potential measures to mitigate the effects of pesticides on pollinators and other ecosystem service providers