Floral Advertising: attracting pollinators

How do flowers attract pollinators:

- We explore which floral traits are important to attract different pollinators by using an experimental approach to see how differences in traits influence pollinator behaviour.
- We assess how floral traits evolve over time and in phylogenetic context.
- We use molecular genetic approaches to determine the developmental and genetic basis of traits which are important for pollinator attraction.
- We currently focus on traits including floral iridescence, petal surface texture, flower patterning and nectar spurs.
- Our work has important applications for food security – 75% of the most commonly grown crops depend on animal pollinators for maximum yield.

Applications – supporting pollinator communities:

- The simplest way to improve crop pollination (and wild plant biodiversity at the same time) is to support wild and managed pollinator communities by providing appropriate food resources across the spring-autumn foraging season.
- We have developed a scientifically informed bee mix which provides nectar and pollen resource for long-tongued and short-tongued bees all season.

Applications – improving crop pollination:

- The field bean *Vicia faba* is dependent on bumblebee pollination for successful yield.
- We are analysing the range of natural variation in floral traits to identify traits which could be targeted to enhance pollination by bees.
- We have found considerable variation in traits including nectar concentration and volume, size of standard petal, texture and grip of wing petals, extent and colour of petal spots.
- Behavioural experiments are being carried out in the lab with bumblebees to determine which traits will be most useful as future tools for bean breeders.