

**OR045***Investigating sublethal pesticide effects on bumblebee navigation and foraging***Dara Stanley**, Nigel Raine

Bumblebees are essential pollinators of many important agricultural crops and wild plants. While foraging in agricultural farmland bees are likely to be exposed to pesticides applied for crop protection. Although bees typically encounter these pesticides at sublethal levels, exposure may still have impacts on factors such as behaviour or reproduction with potential consequences for colony fitness. Neonicotinoid pesticides, which are often applied systemically, are found in the nectar and pollen of mass flowering crops where bees and other pollinators become orally exposed while provisioning their brood/colonies with food. We examined the impact of field realistic doses of a neonicotinoid pesticide, thiamethoxam, on foraging and navigation in a common bumblebee *Bombus terrestris*. We used Radio Frequency IDentification (RFID) tag technology to monitor colonies in a semi-field experiment. Colonies were located in the lab but had free access to forage for nectar and pollen outside. Our results indicate varying effects of pesticide exposure on both bumblebee foraging and homing ability. Our work shows that exposure to field-realistic, sub-lethal concentrations of pesticides may not affect reproduction, but can still impact a critical aspect of bumblebee foraging, pollen collection. This reduced foraging efficiency in colonies exposed to neonicotinoid pesticides could have knock-on impacts for colony fitness not measured in this study.