

Detection and avoidance of *Beauveria bassiana* by seven spot ladybirds *Coccinella septempunctata*

Adult seven spot-ladybirds (*Coccinella septempunctata*) spend the winter months in a dormant state, overwintering in the leaf litter. The insect-pathogenic fungus *Beauveria bassiana* is a significant winter mortality agent of *C. septempunctata*. Most ladybirds form aggregations during the winter months however some individuals spend the winter alone. Pathogen theory indicates that transmission and hence mortality will increase as host density increases, for example in aggregations. However, contrary to these theoretical predictions our studies demonstrated that individuals overwintering alone were more likely to succumb to *B. bassiana* infection than those in aggregations. Through a series of laboratory bioassays we assessed the ability of *C. septempunctata* to detect the presence of *B. bassiana* on soil, leaves and conspecifics. Here we discuss the results and hypothesise that ladybirds can assess and react to environmental cues that relate to mortality risks such as high pathogen density.