

P102*Disturbing ant-aphid mutualism for better biological control of aphids***Csaba Nagy**, Jerry V. Cross, Viktor Marko

Ants and myrmecophilous aphids have a complex mutualistic relationship where both partners benefit from the association. The rosy apple aphid, *Dysaphis plantaginea* (Passerini) is a serious pest of apple, and is commonly attended by the black garden ant, *Lasius niger* (L.). To determine whether manipulating the presence of *L. niger* can lead to increased predation on populations of *D. plantaginea* by natural enemies an orchard experiment was conducted in three organic apple orchards at East Malling Research (UK) in 2011 (cv. Queen Cox and Bramley) and 2012 (cv. Fiesta) and at Research and Extension Centre for Fruit Growing, Újfehértó (Hungary) in 2013 (cv. Topaz). Ants were excluded or distracted from trees by placing either sticky barrier bands around or sucrose solution in bottle feeders at the base of the trunks. Exclusion of ants from trees, as opposed to control trees, resulted in rapid decreases in *D. plantaginea* populations caused by increased activity of natural enemies, even though the sticky barrier prevented the important generalist predator *Forficula auricularia* L. from climbing the trees, too. Provision of sucrose feeders also reduced the activity of *L. niger* in the tree canopies. On most of the trees, ants were distracted from searching for aphids in the tree canopies or abandoned the aphid colonies that they were already tending. The loss of ant protection caused rapid reduction in *D. plantaginea* numbers by the increased activity of aphidophagous predators. Also, this method did not disturb the activity of *F. auricularia*. Occasionally, the ants did not completely stop visiting the colonies, but they stopped or reduced their efforts in protecting them. The implications of these results for supporting better biological control of aphids in apple orchards are discussed.