

P069

Pesticide changes odds of interactions between native and invasive ants

Rafael Barbieri, Phil Lester

Neurotoxic pesticides, such as neonicotinoids, are reported to negatively affect the behaviour and fitness of non-target organisms. Such changes are probably most relevant when they involve interactions between native and invasive species. We have been examining the effects of sublethal exposure to a neonicotinoid on the (1) foraging activities, (2) colony fitness, and (3) outcome of interspecific interactions of two ants that are known to coexist in New Zealand - the native *Monomorium antarcticum* and the invasive Argentine ant (*Linepithema humile*). Neonicotinoid exposure did not affect the probability of both ant species to locate a food source. However, exposed *M. antarcticum* colonies had lower probability to explore new foraging territories. Brood production was significantly lower in Argentine ant colonies exposed to the neonicotinoid. Importantly, pesticide exposure reduced interspecific aggressive behaviour of *M. antarcticum* and increased aggression of the Argentine ant. Such changes in behaviour significantly increased the survival probability of the Argentine ant after interspecific interactions. The success of the invasive Argentine ants is often linked to their high aggressive behaviour and their ability to displace native communities and manipulate food sources. Thus, our results suggest that non-target exposure of native ants to neonicotinoids could potentially increase the probability that this invader survives in invaded settings. Given that, in any community, different species have different food preferences and thus different exposure to pesticides, non-target exposure could potentially change the dynamics of communities and influence invasion success.