

## Large-scale monitoring in insecticide susceptibility in cat fleas, *Ctenocephalides felis*

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The cat flea, *Ctenocephalides felis* (Siphonaptera: Pulicidae) is the most important ectoparasite of domestic cats and dogs worldwide. Although numerous flea control chemicals are available, the sustainability of flea control strategies is constantly threatened by the evolution of pesticide resistance. A larval bioassay was developed to monitor the susceptibility of fleas (*Ctenocephalides felis*) to imidacloprid. Since 2002, samples of flea eggs have been collected from veterinary clinics in Australia, Europe, Canada and the USA. By the end of 2014, 2,838 samples had been received and 1683 of these contributed to the monitoring programme. Up to 120 individuals from each sample were challenged with a diagnostic dose of imidacloprid (3ppm) applied to larval flea-rearing medium. Out of a total of 106,000 individuals exposed, 560 (0.5%) reached adulthood. Annual survival rates varied from 0.04% in 2007 to 1.6% in 2006. There has been no evidence of a directional trend in survivorship from year to year, and follow-up testing of the few samples exceeding a threshold of 5% survival has indicated that survival was a chance effect rather than a significant shift in response. We conclude that the samples evaluated to date show no indication of resistance to imidacloprid.