

42. Neonicotinoid resistance in the glasshouse whitefly, *Trialeurodes vaporariorum* (Hemiptera: Aleyrodidae).

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Between 1997 and 2004 a total of 26 UK and mainland European samples of *Trialeurodes vaporariorum* (Westwood) were assessed for susceptibility to the neonicotinoid insecticide, imidacloprid. All samples collected prior to 2004 responded similarly to a known susceptible laboratory strain when exposed to a discriminating concentration (128 ppm) of formulated imidacloprid. Two samples collected during 2004, one from The Netherlands and one from the UK, demonstrated reduced susceptibility at this concentration. Dose-response assays confirmed the presence of resistant individuals in both these strains. Some individuals were unaffected at doses high enough to induce phytotoxic effects. The levels of resistance observed were sufficient to impair the performance of imidacloprid at label-recommended rates and corroborated reports of reduced efficacy by the relevant growers. As the first confirmed cases of neonicotinoid resistance inducing control failures in *T. vaporariorum*, these data highlight the need for further monitoring and a thorough investigation of cross-resistance patterns, likely resistance mechanisms and the potential of insecticide resistance management strategies.