Longevity and fecundity of laboratory-reared *Liotryphon caudatus*, an ectoparasitoid of codling moth

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Liotryphon caudatus was introduced into New Zealand to control codling moth (CM; *Cydia pomonella*) in the early 1900s. As part of ongoing research into the biological control of CM, a laboratory colony of *L. caudatus* was established from field-collected adults, reared on diapausing CM larvae. The longevity and fecundity of laboratory-reared *L. caudatus* adults were measured at $23\pm1^{\circ}\text{C}$ and 16 h photoperiod. Longevity in a non-host environment was measured by holding a newly emerged female and a male in a container with water and food. Survival of 18 pairs was monitored daily. The food and water in the containers were refreshed regularly. The fecundity and the longevity of females were measured by providing five diapausing CM larvae to each of nine mated females (age 7-10 days) in a similar container with food and water. The CM larvae were replaced every 48 hours until the females were dead. In the non-host environment, the mean longevity of a female and a male was 52.8 ± 3.1 and 40.5 ± 1.5 days respectively. In the host environment, the mean longevity of a reproducing female was 81.2 ± 6.5 days, with a mean fecundity of 150.8 ± 24.1 eggs. These findings will facilitate ongoing investigations of the interactions between *L. caudatus* and *Mastrus ridens*, a recently released gregarious ectoparasitoid of codling moth, in apple-growing areas where *L. caudatus* has already established.

Winter inoculum on the kiwifruit vines - where is it hiding?

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The bacterial pathogen *Pseudomonas syringae* pv. *actinidiae* biovar 3 (Psa) causes significant economic losses in the kiwifruit industry. This pathogen can overwinter in kiwifruit without the plant showing visible symptoms. Molecular tools, developed to detect this pathogen from cultures, had not previously been tested at an orchard level on dormant winter vines. This epidemiological study aimed to detect and quantify the inoculum present on established vines over winter, targeting the areas of the scion on the pergola. The experiment was conducted on female and male vines of four cultivars: *Actinidia chinensis* var. *chinensis* 'Zesy002' (commonly called Gold3), *A. chinensis* var. *chinensis* 'Zesy003' (Gold9), *A. chinensis* var. *deliciosa* 'Hayward', and *A. chinensis* var. *chinensis* x *A. chinensis* var. *deliciosa* 'Zesh004' (Green14). Psa biovar 3 was detected on the vines of all four cultivars, with quantification of the inoculum load (cfu/ml) estimated. Inoculum in all four cultivars increased from winter to spring and inoculum was distributed unevenly around the cankers. This research indicates Psa can be present in asymptomatic tissue, suggesting management of the vines for Psa needs to occur over the winter.