

## NEW ZEALAND PLANT PROTECTION SOCIETY RESEARCH SCHOLARSHIP

Carolyn Bleach was awarded the 2007/08 New Zealand Plant Protection Society Research Scholarship. Carolyn began her Bachelor of Viticulture and Oenology degree at Lincoln University in 2002 and, after completing it in 2005, took on a fixed-term research technician position. During the first few months, she became so interested in the topic, “control of *Cylindrocarpon* black foot disease of grapevines”, that she elected to continue the work as a master’s degree topic, and has since upgraded the research to a PhD.



Several species of *Cylindrocarpon*, the casual agents of black foot disease of grapevines, have been reported overseas as the causal agents of this disease, and so it was initially important to sample widely in New Zealand vineyards. Carolyn found the disease was widespread, with *C. destructans*, *C. liriodendri* and *C. macrodidymum* being fairly uniformly distributed through all grape-growing regions. She also found at least one novel *Cylindrocarpon* species, which is being named by overseas collaborators.

The main aims of Carolyn’s research programme are to investigate the potential of chemical, physical and biological treatments for reducing *Cylindrocarpon* infection levels in young nursery-grown grapevines. A range of treatments has been reported overseas to reduce vine infection when planted in soils infected with *C. destructans* but the treatments were not tested with *C. liriodendri* and *C. macrodidymum*. Her trials in two commercial nursery sites, which contained all three *Cylindrocarpon* species, tested pre-planting dips of three fungicides, a *Trichoderma*-based product and hot water treatment (HWT) of the dormant vines when lifted ready for sale.

The HWT was the most effective treatment in both sites. At the Auckland site, all fungicides reduced the overall levels of disease although the number of plant deaths was increased by these treatments. In Blenheim, there were similar trends to the Auckland site for fungicide efficacy but higher rates of plant fatality reduced the significance of the results. Restricted water for irrigation in the Marlborough area and the hot summer may have contributed to the higher levels of plant deaths. Results also indicated that *Trichoderma*-treated plants showed a slight but insignificant increase in root weights in Auckland.

A further fungicide field trial incorporating the best of the previously-tested fungicides from field and *in vitro* experiments, as well as shorter dip times, has been planted at the Lincoln vineyard. Further experiments are being conducted on a range of HWT temperatures and times, since vines grown in cool climates are known to be more easily damaged by standard HWT methods. Current experiments are also investigating a range of soil amendments to reduce inoculum levels in soil.