CHARACTERIZATION OF *VERTICILLIUM* ISOLATES WHICH ARE PATHOGENIC TO PASSIONVINE HOPPER (*SCOLYPOPA AUSTRALIS*)

R.K. MARSHALL, M.T. LESTER and J.T. CHRISTELLER

Horticulture and Food Research Institute, Private Bag 11 030, Palmerston North

Corresponding author: Richelle.Marshall@hortresearch.co.nz

A range of fungi were isolated from cadavers of passionvine hopper (*Scolytopa australis* Walker) obtained in or close to Te Puke kiwifruit orchards. Among these were several isolates of *Verticillium* which proved to be highly pathogenic to passionvine hopper nymphs. Phylogenetic analysis of ITS and 5.8S rRNA genomic nucleotide sequences indicated that, with one exception, the isolates fell into a single distinct group. On the other hand, morphological variation in conidium size separated the isolates into two distinct groups. A phylogenetic analysis will be presented showing their relationship to other *Verticillium* spp. including other known insect pathogens. Their potential use as a natural biopesticide will be discussed.

EARTHWORM FEEDING ON PERENNIAL RYEGRASS SEED AND SEEDLINGS AND THE EFFECT OF ENDOPHYTE

J.G. BALTUS

AgResearch, Ruakura Research Centre, Private Bag 3123, Hamilton

Corresponding author: joanne.baltus@agresearch.co.nz

Perennial ryegrass (*Lolium perenne*) seed free of the endophyte *Neotyphodium lolii* disappears from pasture at a greater rate than endophyte infected seed. To determine whether earthworms are responsible for this, five species of earthworms, *Lumbricus terrestris*, *Lumbricus rubellus*, *Apporectodea longa*, *Apporectodea caliginosa* and *Eisenia fetida*, were collected from pasture. The worms were held in Petri dishes with damp filter paper at 18°C and offered perennial ryegrass seed without endophyte (Nil) or containing the wild-type endophyte (WT). There were 11-20 replicates per treatment depending on the species of earthworm. The number of seeds consumed was recorded after 24 hours. Seeds egested by the worms were grown into plants and tested for the presence of endophyte. In a second experiment, the same worms were offered 4-12 day old ryegrass seedlings. *Apporectodea longa*, *A. caliginosa*, *L. rubellus* and *E. fetida* ate very little to no seed, and no seedlings. Out of 5 seeds offered over 24 hours, *L. terrestris* earthworms ate an average of 1 WT and 0.73 Nil seeds (range 0-3). This difference was not significant ($P>0.05$). The growth of endophyte-infected plants from egested seed showed that worms were not deterred from feeding by the presence of endophyte.