Potential of entomopathogenic fungal isolates for control of the soil-dwelling life stages of *Thaumatotibia leucotreta* Meyrick (Lepidoptera: Tortricidae) in citrus

C.A. Coombes1*, M.P. Hill1, S.D. Moore1,2 & J.F. Dames3

1Department of Zoology and Entomology, Rhodes University, P.O. Box 94, Grahamstown, 6140 South Africa
2Citrus Research International, P.O. Box 20285, Humewood, Port Elizabeth, 6013 South Africa
3Department of Biochemistry and Microbiology, Rhodes University, P.O. Box 94, Grahamstown, 6140 South Africa

*Author for correspondence. E-mail: c.coombes@ru.ac.za

*ISSN 1021-3589 [Print]; 2224-8854 [Online]*

A trial to assess the efficacy of these isolates against *T. leucotreta* late fifth instars using plastic cages (5-l containers, 20 × 20 × 30 cm, with breathable mesh inserts) was conducted in an organic 22-year-old Palmer Navel orange citrus orchard (Eastern Cape, South Africa) (33°37’S 25°40’E). Soil texture was classified as loam (16 % clay, 38 % silt and 46 % sand) with a soil pH of 7.7. Average soil temperature and moisture within the upper 10 cm soil surface was measured as 21.3 °C and 36.5 %, respectively. The trial was initiated on 13 March 2014 and terminated one month thereafter.

The efficacy of each isolate was determined at three concentrations [2.5 × 1013 (low), 5 × 1013 (intermediate) and 1 × 1014 (high) spores/ha] and in the presence of a lucerne hay mulch at the intermediate concentration. A mulch treatment was included, as the orchard was mulched regularly with sheep’s wool and lucerne. Mulch was added to each respective cage as a thin complete-cover-layer prior to fungal application. Controls and a treatment applied with a commercially produced fungal formulation (Broadband®, a.i. *B. bassiana* strain PPRI 5339) (BASF, South Africa), were included. The trial design was a completely randomised design replicated eight times. Cages were buried in the upper soil layers underneath the canopy of citrus trees (on the south-facing side and 1 m from an irrigation sprinkler) and filled with the soil removed during hole-digging. Fungi, with the exception of Broadband®, were mass-produced as dry aerial conidia by Agrauxine (Loches, France) and applied as an aqueous suspension (water supplemented with 0.01 % **ISSN 1021-3589 [Print]; 2224-8854 [Online]**

©Entomological Society of Southern Africa