

## VALIDATION FOR MASS INOCULATIONS WITH *BEDDINGIA SIRICIDICOLA*, DESPITE APPARENT LOW INOCULATION GENERATED PARASITISM RATES

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Inoculation trials on Sappi landholdings with *Beddingia siricidicola* during 2004 - 2006 resulted in the following average adult female parasitism rates:

2004 = 2.1%, 2005 = 9.3%, 2006 = 8.5%

Sappi Forests embarked on a mass inoculation program during 2007, with the intention to inoculate 50,000 trees between February and May 2007. How is this justified in the light of apparent ineffective inoculations?

Results from the 2005 and 2006 Sappi inoculation trials indicated that parasitized adults mostly emerge from the bottom third of inoculated trees. The levels of parasitized females emerging from the bottom third of sample trees were as follows:

2005 treatments = 19.9%, 2006 felled treatment = 22.9%, 2006 standing treatment = 25.9%

During 2006 un-inoculated *Sirex* infested trees were sampled within a 500 m radius of sites where inoculations during 2005 yielded the highest levels of adult parasitism. The average larval scarring observed was as follows:

Bottom third = 41%, Middle third = 25%, Top third = 25%.

This indicated that parasitism generated from inoculated trees was able to result in natural parasitism in the next generation. Subsequent sampling of these same trees in emergence drums yielded the following adult parasitism:

Bottom third = 31%, Middle third = 13%, Top third = 12%.

Expressed as parasitized females only the result is as follows:

Bottom third = 54%, Middle third = 28%, Top third = 21%

The difference in parasitism levels between total adults vs. females only, is explained by a simple analysis of all the emergence results from 2005 and 2006. It would seem that females predominantly occur towards the bottom of the trees and males in the middle:

Given the huge potential losses ahead of the *Sirex* front there is a demand for a solution driven approach. Operational decisions are often based on assessing results and evaluating opportunities for success on the balance of probability in an ongoing manner. Embarking on mass inoculations during 2007 follows the same precedent:

1. Higher levels of parasitism occur in the bottom third of trees
2. Parasitism from inoculated trees transfers to natural parasitism in the next generation
3. Females seem to predominantly occur in the bottom third of trees

Therefore mass inoculations targeting the bottom third of trees is justified.



Marcel Verleur is currently Manager Special Projects (Silviculture) at Sappi Forests. He has a BSc in Entomology and Botany from the University of Pretoria and is registered for an MSc on the Bio-Control of *Sirex noctilio* on Sappi landholdings through the Nelson Mandela Metropolitan University. Marcel has been with Sappi Forests since 1983 during which time he gained experience as a Forester, Forestry Manager, Development Manager and Business Development Manager.

### NOTES