

TEN OUT OF TEN FOR FABI AS GABY CARSTENSEN SUCCESSFULLY DEFENDS HER PHD THESIS

Gabrielle Carstensen successfully defended her PhD thesis on 27 August, fulfilling all the requirements for a PhD degree – the 10th FABIan to do so this year. She presented a special seminar titled “Bacterial wilt of Eucalyptus: Understanding pathogenicity and the virulence of the causal agents” at FABI on the same day in the presence of family and friends. Gaby completed her study under the supervision of Professors Teresa Coutinho, Fanus Venter and Mike Wingfield. Her examiners were Dr Stephane Genin of the National Institute for Agricultural Research (INRA) in France, Dr Emmanuel Wicker of the French Agricultural Research Centre for International Development (CIRAD) and Prof. Sanushka Naidoo of the University of Pretoria.



Gaby's study was on bacterial wilt in *Eucalyptus grandis* X *urophylla* from different parts of the world and it sought to understand the pathogenicity and virulence of its causal agents. She found that two species – *Ralstonia solanacearum* and *Ralstonia pseudosolanacearum* are associated with bacterial wilt in *Eucalyptus*. These species are also found in asymptomatic trees, she said, and can cause disease in trees that are already stressed. Bacterial wilt causes root rot as well as vascular browning and affects the flow of water in the plant, causing wilting.

The isolates from South America represented *R. solanacearum*, while those from Africa and Asia were *R. pseudosolanacearum*. Gaby found no genetic evidence that indicates host specificity of *Ralstonia* species to *Eucalyptus* and there was no clear distinction between virulence genes in the species. She also found that the presence of *Ralstonia* in asymptomatic trees could establish latent infection in trees. This is important for quarantine measures and the movement of plant material, she said.