

2012

June

Integrated Disease Management to Reduce Future *Ganoderma* Infection During Oil Palm Replanting*

IKE VIRDIANA¹, JULIE FLOOD², BAIHAQI SITEPU¹, YONNES HASAN¹, RACHMAT ADITYA¹ AND STEPHEN NELSON¹

*Three long - term field trials were established in 1998, 2000 and 2001 at PT PP London Sumatra Indonesia Tbk's North Sumatra Bagerpang and Dolok Estates on mineral soils to investigate methods to reduce palm losses to *Ganoderma* infection. The objective of these trials was to investigate whether various replanting techniques would help to reduce the rate of palm losses to *Ganoderma* during oil palm replanting.*

*The 1998 field planted trial was a split-plot design with five replicates, two main plots and three split plots. The main plot treatments compared buried and unburied stems (trunks) that had been inoculated with *Ganoderma*. Split plot treatments investigated different planting distances of bait seedlings (0.5, 1 and 1.5 m away from the trunk).*

The 2001 field planted trial was established at replanting and was a split-plot design with four replicates, two main plots and four split plots. The split-plot size was 50 recorded palms. The main plots compared windrowing 1:1 with 2:1. The split-plots consisted of factorial combinations of a one year fallow, planting immediately, poisoning and not poisoning the previous stand palms.

The 2000 shredding field trial investigated four treatments: i) windrowing 1:1 with no shredding, ii) windrowing 2:1 without shredding, iii) windrowing 2:1 with shredding of the lower 1 m of the oil palm trunk which included the bole, and iv) complete shredding of both the oil palm trunk and bole.

After 13 years of observation (August 2011) of the buried/unburied trunk trial, 60 per cent of bait seedlings planted 0.5 m away from buried trunks, 47 per cent of seedlings planted 1.0 m away from buried trunks and 27 per cent of seedlings planted 1.5 m away from buried trunks had become infected. No infection occurred in any unburied treatments until 2009 when one plant became infected (1.5 m from unburied trunk). Currently, in the unburied treatment, no seedlings are infected at 0.5 m planting, 7 per cent infected at 1 m planting and 10 per cent infected at 1.5 m from the unburied trunks.

*In the ninth year the fallowing trial shows that a one year fallow does significantly reduce *Ganoderma* infection.*

*The shredding trial had infection rates ranging from 14 per cent- 28 per cent after 10 years. Complete shredding of both the oil palm trunk and bole significantly ($p < 0.05$) reduced *Ganoderma* infection.*

*It is concluded that reducing the inoculum level at replanting either by shredding or by fallowing can help to reduce *Ganoderma* infection in the next generation. It is important not to cover oil palm material, from the old stand, with soil during replanting and to plant seedlings as far away as practical, at least 2 m, from the edge of the windrows to delay infection.*

Keywords: Oil palm, *Ganoderma*, replanting, burying, poisoning, windrowing, fallowing.