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## IMPACT OF BARRIERS ON THE ONSET OF A *PHYTOPHTHORA MEGAKARYA* EPIDEMIC IN COCOA

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### SUMMARY

Black pod rot of cocoa caused by *Phytophthora megakarya* causes significant losses in Cameroon. Normally (chemical) control efforts only begin when the first diseased pods appear. In theory, preventive control, focusing on reducing primary inoculum or barring it from infecting cocoa pods could alter the spatial and temporal development of a *P. megakarya* epidemic and reduce its impact. The principal source of primary inoculum is thought to originate from the soil. Therefore, the objective of this study was to study the effect of barriers between the soil and the cocoa tree, physical as well as chemical, on the onset of a *P. megakarya* epidemic. A completely randomized plot design was used, including five treatments with three replicate plots per treatment. Each plot consisted of 16 cocoa trees. Treatments were i) Control, no intervention, ii) Bare Soil, removal of the litter layer surrounding the cocoa trees, iii) Double Litter Layer, the removed organic matter (OM) from the bare soil treatment was added to this third treatment, iv) Ridomil, Ridomil was applied in three week intervals onto the OM surrounding the cocoa trees and v) Plastic Barrier, a plastic sheet was spread on top of the litter layer surrounding the cocoa trees. Data, the number of healthy and diseased pods below or above 3 meters above ground level, were recorded weekly. The cumulative number of diseased pods (CDP) as well as the pod rot rate (PRR) were calculated and plotted over time. The results showed that the bare soil treatment had the highest number of diseased pods as well as PRR, followed by the control, double litter layer and Ridomil treatments. The plastic barrier treatment had the lowest CDP and PRR, moreover, the first diseased pods appeared later in time compared with the other treatments. Pod rot rate and number of diseased pods was higher up to 3 meters than above 3 meters. The results of this study clearly demonstrate the importance of soil-born primary inoculum. Moreover, it demonstrates that it should be possible to delay the onset and subsequently reduce the severity of a *P. megakarya* epidemic, which could lead to less fungicide applications and higher yields. More attention should be given to the development of preventive control measures for *P. megakarya* pod rot.