

Cacao viability: the case of cacao swollen-shoot virus co-infection

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Abstract

The cacao swollen shoot virus disease (CSSVD) is among the most economically damaging diseases of cacao trees and accounts for almost 15–50% of harvest losses in Ghana. This virus is transmitted by several species of mealybugs (Pseudococcidae, Homoptera). One of the mitigation strategies for CSSVD investigated at the Cocoa Research Institute of Ghana (CRIG) is the use of mild-strain cross-protection of cacao trees against the effects of severe strains. In this talk, we introduce simple deterministic, delay, and stochastic ordinary differential equation-based models to describe the dynamic of the disease and spread of the virus. We will discuss the model performance on reproducing the empirical data collected by from CRIG and show that these models can be used to gain useful informative insights about the nature of disease spread.

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