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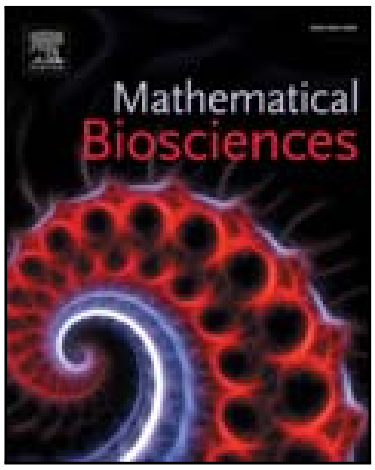

Optimal control of anthracnose using mixed strategies

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Highlights

- The paper develops a realistic model for the spatiotemporal evolution of athracnose disease prevalance in a bounded two- or three-dimensional domain. The model includes the possibility of two types of control strategy: chemical (modeled using a continuous control function) and cultivational (modeled as discrete pulses).
- The paper establishes well-posedness of the model, as well as the existence of optimal impulsive and mixed strategies.
- The paper proves and simulates an explicit algorithm for obtaining an optimal impulsive strategy.
- The paper shows that in some cases a simplified averaged model can be used to characterize system behavior and to obtain an optimal impulsive strategy.

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