Ghosh, S.; **Bhattacharya, D. K.**

Optimization in microbial pest control: An integrated approach. (English) Zbl 1186.93048

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Summary: The paper deals with optimal management of agricultural pest population under integrated control arising out of viral infection and spraying of pesticide. The costs of the control measures and the profits or projected profits of the biomass of species give rise to a control theoretic optimization problem. We take a four dimensional mathematical model of pest control under viral infection and pesticide, and apply Pontryagin's maximum principle (PMP) to find out the necessary conditions on economic as well as on ecological parameters to make the control process maximum profitable.

MSC:

93C95 Application models in control theory
49N90 Applications of optimal control and differential games
92D40 Ecology
91B76 Environmental economics (natural resource models, harvesting, pollution, etc.)

Keywords:

insect pest control; viral infection; optimization

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