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Timothy D Comar* (tcomar@ben.edu), **Olcay Akman** and **Daniel Hrozencik**. *Monte Carlo Model Selection for Integrated Pest Management*.

We discuss how impulsive differential equations (IDE) have been used to model integrated pest management (IPM) systems. We extend existing IDE models for IPM by including stage structure for both predator and prey as well as by adding stochastic elements in the birth rate of the prey. Based on our model, we present an approach that incorporates various competing stochastic components. This approach, using Monte Carlo simulation, enables us to select a model with optimally determined weights for maximum consistency, accuracy, and precision in parameter estimation. This is significant in the case of integrated pest management because the proposed model accommodates varying unknown environmental and climatic conditions, which affect the resources needed for pest eradication. (Received January 19, 2015)