1014-92-1503   **Holly D. Gaff*** (`hgaff@epi.umaryland.edu`), Dept of Epi and Preventive Med, University of Maryland, 660 W. Redwood St, Howard Hall 140A, Baltimore, MD 20740, and **Hem Raj Joshi** and **Suzanne Lenhart**. *Optimal harvesting during an invasion of a sublethal plant pathogen.*

Plant pathogens are quite destructive to cash crops throughout the world resulting in potentially devastating financial losses. We present work that expands recently developed optimal control theory for an integrodifference model to a mathematical system which includes an integrodifference component. This system of equations models a highly simplified plant pathogen system for which the optimal harvesting scheme is derived. An adjoint system is introduced to characterize the optimal harvesting pattern. This analysis shows that while it may not be possible to prevent losses upon discovery of the pathogen in an area, it is theoretically possible to significantly cut those losses by culling an area around the initial infection. (Received September 28, 2005)