1063-39-11 **Yun Kang*** (yun.kang@asu.edu), Applied Sciences and Mathematics, Mesa, AZ 85212, and **Dieter Armbruster**, Math Department, Tempe, AZ 85297. *Dynamics of a discrete two-patch model on plant-insect interactions.*

We formulate and study a simple two-patch discrete time plant-insect model coupled through a dispersal of insect. Our objective is to understand how different intensities of dispersal impact both local and global population dynamics of the two-patch model, especially, we pay attention to two situations: when the single-patch model (i.e., in the absence of dispersal) is permanent and when the single-patch model exhibits Allee-like effects. First, we explore the existence and stability of synchronous and asynchronous dynamics between two patches. If the single-patch system is permanent, our analysis shows that the permanence of the system can be spoiled by large dispersals and large attacking rates of insect, thus, create multiple attractors; If the single-patch model exhibits Allee-like effects, the analytical and numerical results indicates that the small intensity of dispersals can generate source-sink dynamics between two patches, while the intermediate intensity of dispersals promote the extinction of insect in both patches, which may suggests a possible biology control strategy to stop the invasion of a pest by controlling its migration between patches. (Received August 10, 2010)