

Species Coexistence: Identifying mechanisms of unique feeding niches of two aphid species

II. Abstract

Species coexist, coexistence interaction is one of the most powerful and enigmatic forces in nature contributing to diversity. The study of coexistence and its mechanisms are at the core of community ecology. My research has focused on understanding the mechanisms underlying the coexistence of two aphid species which are pests of wheat (Fig. 1). Both species co-occur and are segregated on the same plant. Knowledge of the dynamics of coexistence of *R. padi* and *R. maidis*, is greatly lacking and constitutes an excellent model system to investigate feeding niches of generalist herbivores. Colonization order may be fundamental in the coexistence of *R. padi* and *R. maidis*. I hypothesize that pre-colonization of the plant host by *R. padi* facilitates the subsequent colonization of *R. maidis*. In my pre-liminary experiments I have found: 1) the thermal range for the coexistence interaction, 2) the thermal preferences of each species, 3) the effect of pre-colonization of *R. padi* on *R. maidis* feeding behavior, and 5) fitness differences associated with aphids distribution on the plant. I am requesting funding to investigate how *R. maidis* colonization is facilitated by *R. padi*.

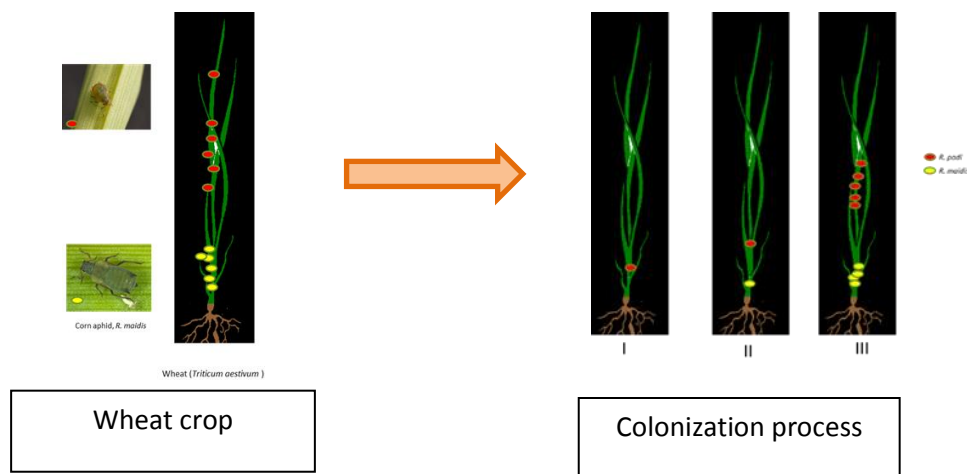


Figure 1. Distribution of *R. padi* and *R. maidis* on wheat plant. Colonization order.