

The impact of climate warming on the interaction of aphid wheat pests *Rhopalosiphum padi* and *R. maidis*

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Wheat production is limited by diseases and insects. Barley yellow dwarf virus (BYDV) is an aphid-vector disease that causes significant losses in cereals worldwide by reducing photosynthesis. BYDV is a virus complex transmitted by the aphids; *Rhopalosiphum padi* and *R. maidis* has been observed cohabiting on the same plant, there is a possible aphid attack strategy between the species that has not been studied and its sensitivity to climate warming conditions may play a role in reducing wheat production. Climate is a primary determinant for the growth of insects and crops. Given that likely climate change scenarios indicate global warming, it is suggested that warming will modify aphid vectors spatio-temporal dynamics, increasing the number of aphid generations per year. Which mechanisms are behind the aphid distribution on the plant? Will inter-specific aphid interactions change with increased temperatures? Will aphid generation time decrease with increased temperature?

The project has two phases: phase I the hypothesis the population dynamics of both species depends on their interaction on the plant. Phase II will test the hypothesis increased temperature affect the population parameters of both species.

This project will provide many novel approaches to the study of the effects of climate warming on insect pests using a system insect-virus vector on wheat crop as a model system. Elucidating the interaction of *R. padi* and *R. maidis* will play a role in understanding virus disease spread. Both species have worldwide distributions; therefore outcomes obtained here can be useful in several countries to manage BYDV disease.

Biography

Mitzy F. Porras enrolled in Ph.D. in Entomology, and dual title degree in International Agricultural Development at Penn State University, is a biologist of Universidad Nacional de Colombia. She has worked and leaded projects in different countries on macroecology of insects in natural and agroecosystems. She has published articles on journals during her undergraduate program and got a Fulbright scholarship for her doctoral studies.

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