



Candidate for Assistant Professor of Biological Control position: Ryan Paul



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Oregon State University
USDA-ARS Horticultural Crops Research Unit

Date: Thursday, February 02, 2023
Time: 2:00 pm - 3:00 pm
Format: In-Person Seminar & Virtual Access
Location: Genomics Auditorium 1102A

Zoom: 938 1040 4405
Passcode: 833289

Title:

“Beyond host range: Applying an ecological approach to parasitoid biological control”

Abstract:

Biological control agents have diverse life histories and are integrated as part of a community of organisms, forming novel associations during exotic natural enemy introductions. Yet, biological control programs often focus heavily on determining host ranges of classical biological control agents. While this is certainly a key component, other characteristics and interactions which influence the establishment, efficacy, and nontarget impacts of released natural enemies may be overlooked. By drawing from ecological theories, I have explored the role of these ecological concepts in various parasitoid biological control systems. First, I explore how life history, behavior, and foraging conditions affect the potential of the egg parasitoid wasp *Trissolcus japonicus* for biological control of brown marmorated stink bug. My recent findings have identified a relationship between activity and egg load and foraging patterns that could impact efficacy and nontarget risk. This emphasizes the need to explore such characteristics to properly design laboratory methods for assessing biological control agents. Furthermore, I evaluated the effects of nontarget hosts on parasitoid fitness, which can improve our understanding of nontarget use and population dynamics. Next, I explore non-host interspecific interactions with parasitoids, including plant and competitor relationships. Plants produce chemical defenses which can impact parasitoid success, but defense expression can also be influenced by parasitoids. I will also discuss the role of parasitoid life history in determining the outcome of interspecific interactions. Biological control systems provide excellent models for exploring ecological concepts and novel interactions, which can simultaneously improve implementation of new biological control programs.

Refreshments will be served in the Entomology Building Courtyard at 1:30pm