



# 2014 Orchard Pest and Disease Management Conference



The 88<sup>th</sup> Conference is pleased to  
announce our keynote speaker:

**Stephen Welter**  
Vice President for Research and Dean  
of Graduate Affairs,  
San Diego State University

Keynote Address:

**A Tale of Two Systems:  
Social and Technical Evolution  
of Mating Disruption Systems  
in the Western US and the  
WODPM**



Hilton Portland, Portland, Oregon  
January 8-10, 2014



Biology/Phenology

***Drosophila suzukii* Population Estimation**

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*Keywords:* temperature-dependent matrix model, risk, life table, spotted wing drosophila, *Drosophila suzukii*

*Abstract:* Spotted wing drosophila (SWD), *Drosophila suzukii* Matsumura (Diptera: Drosophilidae: Drosophilini) is a global pest attacking ripening small and stone fruits. Laboratory studies were conducted to determine temperature-dependent survival and fecundity of SWD. A temperature-dependent matrix model using these data was applied to determine if population pressure of *D. suzukii* could be predicted based upon environmental conditions. As an example, different pressure levels were found in two distinctly different seasons in the Willamette Valley of Oregon. The model was also applied to determine the effects of population factors such as regional climatic differences, microclimates, bacterial infection and parasitism. The population model is an additional tool for SWD risk-prediction. Pest management practitioners can make timely management decisions as the crop ripens using this model. The limitations and benefits of using this model are discussed.