

**Research Final Report  
to the  
Agricultural Research Foundation  
for the  
Oregon Association of Nurseries and the Nursery Research & Regulatory Committee**

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**TITLE:** Investigation of Phenology and Management of Rose Midge, *Dasineura rhodophaga*.

**Principle Investigators**

Robin Rosetta, Associate Professor  
Department of Horticulture  
Oregon State University  
15210 N.E. Miley Road  
Aurora, Oregon 97002-9543  
Email: [robin.rosetta@oregonstate.edu](mailto:robin.rosetta@oregonstate.edu)

Jan McNeilan, Associate Professor  
Department of Horticulture  
Oregon State University  
15210 N.E. Miley Road  
Aurora, Oregon 97002-9543  
Email: [jan.mcneilan@oregonstate.edu](mailto:jan.mcneilan@oregonstate.edu)

**COOPERATORS:**

Bob Stillson, Harry Landers, International Rose Test Garden; John Reed, Portland Parks; S. Scarborough, Clackamas Community College; and Sara Allen, Portland State Univ.

**ABSTRACT:**

Rose midge, *Dasineura rhodophaga* (Coquillett) [Diptera: Cecidomyiidae], can be a key pest of roses in the landscape and rose production nurseries. The objective of this research was to investigate management of this midge. We evaluated a “pre-emergent” application of insecticide timed to control overwintering midge populations before they emerge in the spring. A field trial was conducted at the International Rose Test Garden (IRTG). Three treatments were applied to plots separated by buffer zones. The treatments were: 1) untreated control; 2) imidacloprid granular insecticide (Merit) applied prior to midge emergence (Feb. 23-24, 2005); and 3) foliar cyfluthrin (Tempo) applied beginning April 8, 2005 and every two weeks throughout the growing season (12 sprays). Plots were sampled every week from July 15, 2005 through September 30. A quantitative assessment of percent tip damage was obtained by counting new growing tips and the number of those tips damaged. There was no difference in percent damage between the two chemical treatments. There was a difference between percent damage in the chemical treatments (around 2 percent) and the untreated control (peaking at 54 percent damage).

**PROJECT OBJECTIVES:**

A. The goal of this project was to determine the phenology of rose midge in cultivated roses to enhance knowledge of key life cycle events and potential timing of management actions.

B. The second objective of this project was to evaluate the use of two insecticides for control rose midge in landscape plantings.

**Methods and Materials:**

We had two study sites: International Rose Test Garden (IRTG), Portland, OR and North Willamette Research and Extension (NWREC). The NWREC trial was discontinued when it was determined that midges had escaped from caged plots.

1. A field trial was conducted at the International Rose Test Garden. Three treatments were applied to plots separated by buffer zones. The treatments were: 1) untreated control; imidacloprid granular insecticide (Merit) applied at 1.8 lbs/1000 ft<sup>2</sup> (80 lbs/acre) prior to midge emergence (Feb. 23-24, 2005); and foliar cyfluthrin (Tempo 2) at a rate of 45 ml/100 gal applied April 8, 2005 and every two weeks throughout the growing season (12 sprays) Plots were sampled every week from June 1 to September 30, 2005. A quantitative assessment of percentage tip damage was obtained by counting new growing tips and noting the number of those tips damaged. The initial untreated control area did not have sufficient rose midge pressure, therefore an additional untreated control area was added on July 15. (For data from July 15 until Aug. 12, 2005 see Chart 1.). Data were subjected to analysis of variance and means were separated with Fisher's Protected LSD ( $\alpha = 0.05$ ).

**RESULTS:**

The first signs of rose midge larvae and damage were detected April 6, however, damage was minimal and erratic in early spring and through the first week of July. Midge damage from July 15 until Aug. 12, 2005 is shown in Chart 1 when midge injury was severe. There was no significant difference in percent damage between the two chemical treatments. There was a significant difference between percent damage in the chemical treatments (around 2 percent) and the untreated control (peaking at 54 percent damage).

These results indicate promise for managing these midges using this "pre-emergent" timing and imidacloprid. This management strategy will be tested on a larger scale during the 2006 growing season. We would also expect additional benefits of using a systemic neonicotinyl such as imidacloprid on sucking insects such as aphids. Reducing impacts of multiple applications of a broad spectrum pyrethroid on natural enemies is also of interest as the IRTG has noted increased mite populations with the use of these foliar insecticides.

In addition to the expanded trial at the IRTG, a study will be conducted at NWREC during 2006 to evaluate various treatments including Diazinon WP; Merit; and the biological control agents; *Steinernema feltiae* ; and *Metarhizium anisopliae*.

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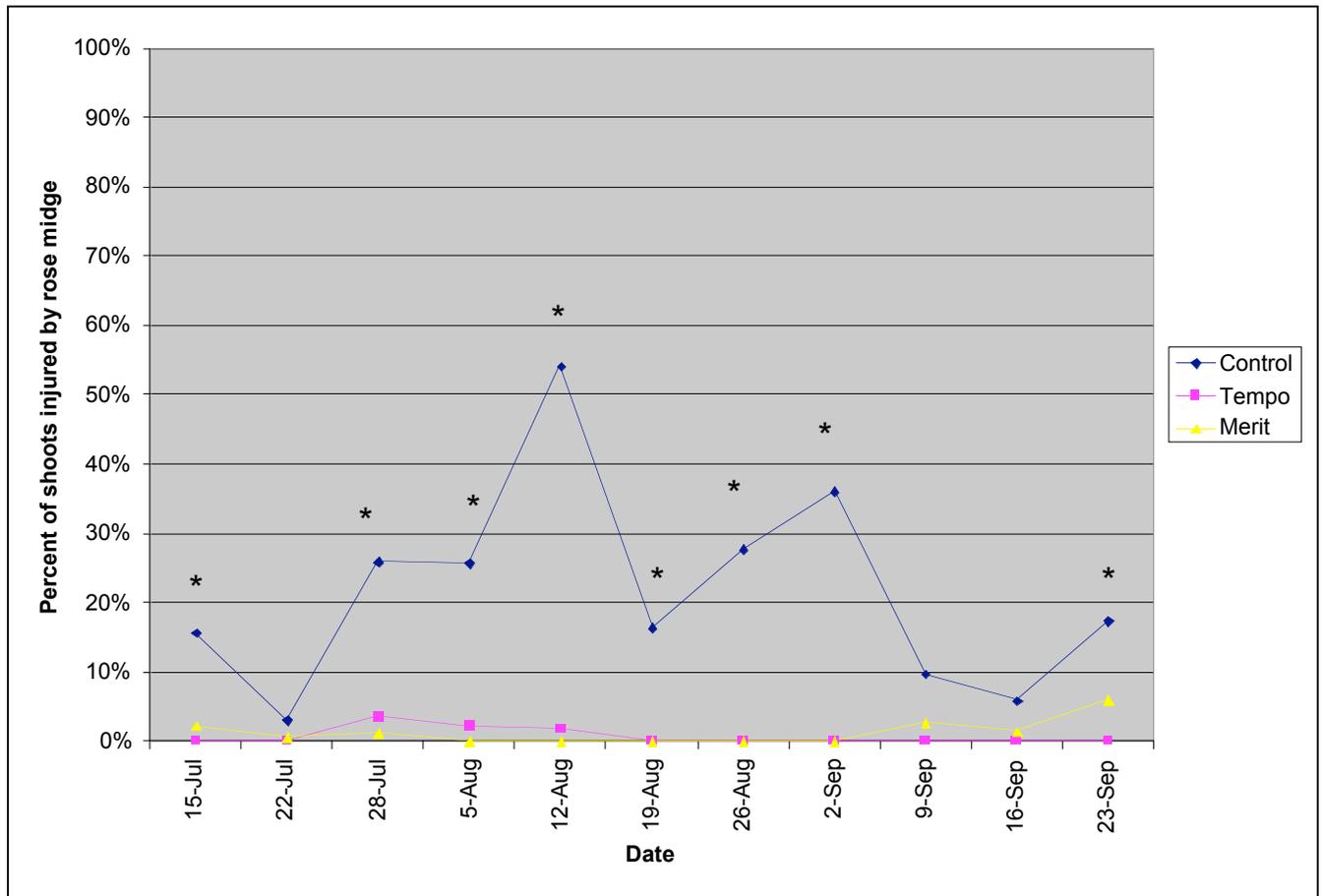


Chart 1. Percent of rose shoots damaged by rose midge in plots at the International Rose Test Garden in 2005. Asterisks indicate a significant difference in rose midge injury on untreated control plants and insecticide-treated plants ( $\alpha = 0.05$ ).