Joel P. Siegel, USDA/ARS, SJVASC, CPQ
9611 South Riverbend Avenue, Parlier 93648
jsiegel@fresno.ars.usda.gov; 559-596-2735

Post harvest use of biological and chemical agents to control navel orangeworm in pistachios

Degree-days (DD) are dynamic rather than static. They are accumulated at different rates depending on time of year and on county. This is illustrated by egg hatch in Kern and Madera County, using 100 DD°F and the six year average temperature

Kern County:

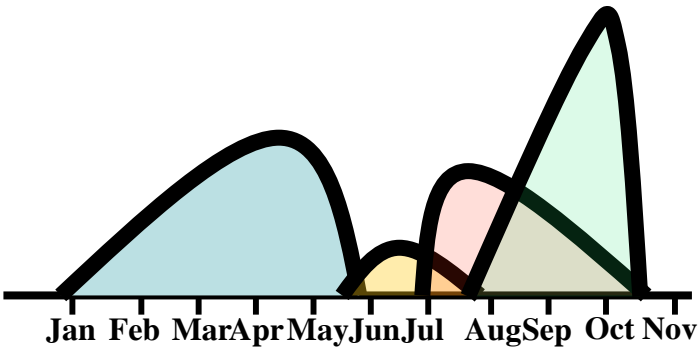
An egg laid on February 1 will hatch March 13 (41 days)
An egg laid on March 1 will hatch March 23 (23 days)
An egg laid on March 15 will hatch March 31 (16 days)

Madera County:

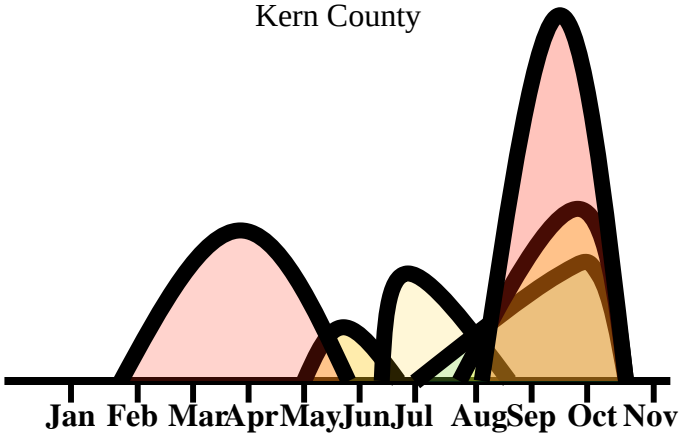
An egg laid on February 1 will hatch March 21 (49 days)
An egg laid on March 1 will hatch March 31 (31 days)
An egg laid on March 15 will hatch April 7 (23 days)

Consequently, the season-long progress of navel orangeworm varies between counties. Kern County may have as many as two more generations than Madera County. The first flight may last as long as 6 months but subsequent flights are shorter. The concept of discrete generations of navel orangeworm breaks down rapidly.

Madera County



Kern County



In Madera County all eggs laid after September 23 contribute to the overwintering population while in Kern County eggs laid after September 28 contribute this population. Consequently, a post harvest spray after these dates should augment sanitation. This was evaluated at AgriWorld and S&J Ranch by applying a mixture of Intrepid and Permethrin on October 6, 2005. The population was reduced by 82% at S&J Ranch and 56% at AgriWorld. September 26, 2006 at S&J Ranch.