

**Poster Title: A Field Trial to Evaluate Deleterious Effects of Composted Municipal Greenwaste and Soil Solarization on Black Mustard Seeds**

*Hernandez, Kate*<sup>1\*</sup>, *Stacy Betts*<sup>1</sup>, *Ruth Dahlquist*<sup>1</sup>, *Megan Marshall*<sup>2</sup>, *Jean VanderGheynst*<sup>3</sup>, *Chris Simmons*<sup>3</sup>, *Joshua Claypool*<sup>3</sup>, and *James Stapleton*<sup>4</sup>. <sup>1</sup>Department of Biology, Fresno Pacific University, Fresno, CA; <sup>2</sup>Department of Agricultural Engineering, The Pennsylvania State University, University Park, PA; <sup>3</sup>Department of Biological and Agricultural Engineering, UC Davis; <sup>4</sup>Statewide Integrated Pest Management Program, UC Kearney Agricultural Center (KAC), Parlier, CA. \*kmh5@fpu.edu

Composting of municipal greenwaste provides products that may be combined with existing pest management techniques, such as soil solarization, for enhanced herbicidal efficacy. By itself, solarization can be a useful alternative to chemical herbicides for weed management in many areas of California. A replicated field trial was conducted in July 2011 to evaluate the effect of amending soil with greenwaste compost on mortality of seeds of black mustard (*Brassica nigra* (L.) W. D. J. Koch) during solarization. Organdy bags were filled with seeds and field soil, either alone or amended with 8% greenwaste compost and 2% wheat bran (dry basis). Bags were then buried in plastic, 1 gallon nursery plant bags containing the same mixture. The nursery bags were then buried at the experimental field site at KAC in Parlier, and the plots were irrigated and covered with clear plastic. Seed bags were sampled at intervals of 2, 3, 3.5, 4, and 22 days after the beginning of the field trial. Seed mortality, as determined by germination tests and tetrazolium staining, was much higher in the compost-amended, solarized soil, with an average of 78% mortality on the first sampling date and 100% mortality for all subsequent samples. Seed mortality in non-amended, solarized soil was relatively low (14-29%) for the first four sampling dates, and 100% mortality was not reached in soil by the 22 day sample. The higher seed mortality observed in greenwaste-amended soil could be due to increased heat from decomposition of the organic fraction of the mixture, or to seed exposure to toxic constituents of the compost. These preliminary results suggest that composted greenwaste may be useful in agricultural weed management, especially when combined with solarization.