

## **Soil Disinfestation Using Steam in Field-Grown Cut Flowers**

Christine Rainbolt  
USDA-ARS, Parlier, CA

Methyl bromide is a key component of pest management programs in California cut flower production due to the broad spectrum of pests controlled including weeds, nematodes, and soil borne pathogens. Its short residual activity allows growers to replant an area soon after treatment, limiting the time an area is out of production. However, methyl bromide has been classified as an ozone depleting substance and is being phased out. A critical use exemption has been granted to cut flower growers in California for continued use due to a lack of effective and economical alternatives. Fewer critical use exemptions are granted each year and finding a methyl bromide alternative is imperative. Steam has been used to disinfest potting media for over a century and is a potential alternative to methyl bromide. In a greenhouse trial in 2009, weed population and Oriental lily height and yield were compared among two steam application methods, hot-gas methyl bromide, and an untreated control. Steam treatments were applied using four rows of drain tile buried 12 inches apart and 12 inches deep or using lay-flat hose with 10 inches spikes spaced 10 inches apart pressed into the surface of the bed. Soil in the steam plots was heated to 70°C to a depth of 12 inches for at least 30 min. Weeds were counted one and two months after treatment, and for each date, there were significantly more weeds per half meter<sup>2</sup> in the untreated control compared to both steam treatments and the methyl bromide treatments. Similarly, plants were significantly taller in the steam and methyl bromide plots compared to the control. However, yield was not different among treatments. Additional research is ongoing to determine if steam disinfestation can be an effective and economical alternative to methyl bromide for the California cut flower industry.