

Using radiation to sterilize insect pests may protect California fruits and vegetables

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A new study published in the *Journal of Economic Entomology* shows that radiation can be used to effectively sterilize the light brown apple moth (LBAM), an insect pest found in Australia, New Zealand, California, Hawaii, Sweden, and the British Isles. The light brown apple moth, *Epiphyas postvittana* (Walker), feeds on apples, pears, stonefruits, citrus, grapes, berries and many other plants. A native of Australia, it has been found in California since 2007. The California Department of Food and Agriculture has spent more than \$70 million in CDFA and USDA funds to eradicate the LBAM, and estimates that failure to eradicate it could cost California growers over \$133 million per year.

The article, "Radiation Biology and Inherited Sterility of [Light Brown Apple Moth](#) (*Lepidoptera: Tortricidae*): Developing a Sterile Insect Release Program" is available now in PDF format at <http://bit.ly/vuH0sT>

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Using similar methodologies in two different laboratories, the authors coordinated radiation biology studies between two geographically isolated LBAM populations from Australia and New Zealand. The results showed that for both populations, an irradiation dose of 250 Gy administered to LBMA pupae induced >95% sterility in females and >90% sterility in males. These results can be used to initiate a suppression program against the LBMA where sterile males are released, mate with wild females, and no offspring are produced. If successful, this technique can largely eliminate the need for pesticides.

"These results suggest that a [sterile insect technique](#) (SIT) or F1 sterility program can be applied to control an infestation of *Epiphyas postvittana*, but these would still be reliant on complementary information such as physical fitness and modeling of overflooding ratios." according to the authors. "The challenge now is to identify the dose of radiation that would provide a balance between insect sterility and field competitiveness."

Provided by Entomological Society of America

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