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Light Brown Apple Moth - A Letter Report by the National Research Council

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## Current biocontrol strategies

Leafroller larvae and pupae (predominantly light brown apple moth) and parasitoid cocoons were collected from orchards and vineyards in Hawke's Bay between 1993 and 2009 (Lo, unpublished data). These specimens were reared to determine which species of leafroller or

parasitoid emerged. *D. tasmanica* remains the most abundant leafroller parasitoid, comprising 66% to 97% of the parasitoids reared from apple and stone fruit trees, berry fruit and grapevines. The next most abundant parasitoids were *T. brevipalpis* (1% to 27%), *G. demeter* (2% to 16%) and *Goniozus jacintae* (2% to 12%). *D. tasmanica* comprised 90% of the parasitoids

reared from the first four larval instars, reducing light brown apple moth larvae by 85% on average. A high proportion of neonate light brown apple moth larvae fail to settle and establish successful leafrollers, and die before reaching the second instar. Later larval stages are then subjected to high levels of parasitism that potentially further reduced light brown

## National Research Council reviews pest status of light brown apple moth

by Rhonda J. Smith

**I**N 2007, the light brown apple moth was classified by the U.S. Department of Agriculture's Animal Plant Health and Inspection Service (APHIS) as an actionable, quarantine-significant pest, meaning that its presence has potentially significant economic importance. Its presence in California resulted in a federal order restricting the interstate movement of specific agricultural commodities and their byproducts from affected counties. To meet the federal order, the moth is subject to quarantine and eradication efforts by both APHIS and the California Department of Food and Agriculture (CDFA).

In 2009, more than 3,500 square miles of California were in the quarantine area. Growers and others who move regulated articles off-site are required to have compliance agreements with the county agricultural commissioner's office. In Sonoma County, for example, affected commodities include wine grapes, apples, cane berries, strawberries, nursery stock, cut flowers and most vegetables and herbs, as well as green waste. Compliance agreements are also required of the entity that receives product, such as wineries, processing and packing plants. Wine-grape haulers are required to have compliance agreements if they transport grapes from a quarantine area.

In September 2008 and February 2009, APHIS received one petition from four citizens, and another from the Pesticide Action Network of North America plus other organizations, requesting that light brown apple moth be reclassified from an actionable to a nonactionable pest. In addition, the

petitioners argued against eradication as a feasible regulatory action. In June 2009, APHIS wrote a draft response to the petitions and requested that it be reviewed by the National Research Council (NRC).

The NRC's September 2009 "Letter Report" addressed whether the federal government had the regulatory authority to classify light brown apple moth as an actionable, quarantine-significant pest, and evaluated both the scientific basis for this regulatory decision and the quality of the evidence presented.

The 31-page report had two take-home messages. First, APHIS did have the authority to classify light brown apple moth as an actionable pest and thus could take regulatory action. Second, the evidence used as the basis for the classification decision was insufficient and unclear, and in some instances the evidence was not clearly supported by the data provided.

**Finding 1:** Only qualitative, rather than quantitative, criteria on economic/environmental damage are required for the Secretary of Agriculture to determine a regulatory response to a pest. APHIS met the minimal standard by providing evidence of the moth's potential invasive nature and economic and environmental impacts, but the agency's justification is not scientifically rigorous.

**Finding 2:** The data used to predict the potential geographic distribution of light brown apple moth in the United States and the subsequent economic impact analyses are not based on "sound, rigorous science."

**Finding 3:** The evidence presented to make estimates of the potential economic damage to agricultural production and trade, as well as environmental damage to native and endangered plant

species, is not evaluated consistently and has limitations that are not clearly acknowledged or explained.

**Finding 4:** The credibility of the response is undermined by factors such as inadequately documented statements and scientifically imprecise terminology.

**Finding 5:** APHIS has not published a proposed or final rule of the federal order in the Federal Register for comment under the Administrative Procedure Act and missed the opportunity to justify its actions to the public.

**Finding 6:** APHIS chose to limit the scope of its response by not addressing the use of eradication as the current control strategy, and thus "may have exacerbated public concerns about the eradication effort."

The NRC scientists could only address what was contained in the APHIS response; however, they emphasized that APHIS did not include a rationale for choosing eradication, which is one of several possible approaches to control a regulated pest. Instead, APHIS restricted its response to the issue of the light brown apple moth's classification status and missed an opportunity to explain its decisions to the general public.

It is important to read the full NRC Letter Report, which recommends that APHIS refocus on the question of why this pest is so important to the United States and base their response on a detailed economic analysis.

Go to: [http://www.nap.edu/catalog.php?record\\_id=12762](http://www.nap.edu/catalog.php?record_id=12762). For information on CDFA's Light Brown Apple Moth Project, go to: [http://www.cdfa.ca.gov/phpps/PDEP/lbam/lbam\\_main.html](http://www.cdfa.ca.gov/phpps/PDEP/lbam/lbam_main.html).

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