

FINDING OF EMERGENCY

The Secretary of the Department of Food and Agriculture determined that an emergency exists, the light brown apple moth (*Epiphyas postvittana*) was recently unexpectedly detected at two locations in the Ryer Island area of Sacramento and Solano counties. This area is approximately 15 miles from the nearest known LBAM infestation. These detections are indicative of an incipient infestation in this area. It is believed this is due to the unexpected occurrence of artificial spread of LBAM.

In 10 of California's affected counties, it is estimated that LBAM could cause \$160 to \$640 million in losses. These estimates were derived from the agricultural impacts in Australia and New Zealand. This estimate does not include economic costs to the nursery industry nor to other significant host crops in California such as apricots, avocados, kiwifruit, peaches, etc., grown in other counties. More information regarding potential economic impact in California may be found in the environmental assessment prepared by USDA at www.aphis.usda.gov/plant_health/ea/downloads/lbam_ea_sc.pdf.

LBAM feeds upon over 250 species of native and ornamental plants. There are numerous sensitive plant species and habitats currently located outside the areas currently under regulation. There is a threat for adverse consequences to some of these sensitive species if LBAM becomes permanently established in these new areas.

The proposed amendment of Section 3591.20(a) would establish Sacramento County as an additional eradication area for LBAM. The entire county is being proposed as an eradication area as the authority for "The searching for all stages of light brown apple moth by visual inspection, the use of traps, or any other means anywhere within the said area" is immediately needed. Additionally, once implemented, delimitation surveys may result in finds of additional small LBAM infestations outside the current suspected infested area of Sacramento County. To enable rapid treatment of newly discovered small infestations

without frequent amendment of the regulation, the entire county should be established as an eradication area.

The effect of the amendment of this regulation will be to implement the State's authority to perform control and eradication activities against LBAM in Sacramento County. Any eradication or control actions undertaken by the Department will be in cooperation and coordination with federal, city, county and other state agencies as deemed necessary by the Department to ensure no long-term significant public health or environmental impacts. Existing law provides that the Secretary is obligated to investigate the existence of any pest that is not generally distributed within this state and determine the probability of its spread, and the feasibility of its control or eradication (FAC Section 5321).

Emergency Rulemaking Procedures

In this document the Department is providing the necessary specific facts demonstrating the existence of an emergency and the need for immediate action to prevent serious harm to the general welfare of the citizens of California, pursuant to Government Code Section 11346.1(b)(2).

Since the Department does not have a record of any person requesting a notice of regulatory actions under Government Code Section 11346.4(a)(1), the provisions of Government Code Section 11346.4(a)(2) do not appear to be applicable to this emergency action.

The information contained within this finding of emergency also meets the requirements of Government Code Sections 11346.1 and 11346.5.

California Environmental Quality Act

A Programmatic Environmental Impact Report (PEIR) was prepared by the Department as the lead agency under the California Environmental Quality Act (CEQA). The PEIR

addresses the potential environmental impacts that would result from implementation of alternatives for the eradication of the light brown apple moth (LBAM) (*Epiphyas postvittana*). The PEIR may be accessed at the following website:

<http://www.cdfa.ca.gov/phpps/PDEP/lbam/envimpactrpt.html>

Additionally, on March 22, 2010, the Department filed a “Notice of Determination that it was compliant with the provisions of CEQA. This document and the CEQA mandated findings for LBAM may be accessed at the following website:

http://www.cdfa.ca.gov/phpps/PDEP/lbam/lbam_main.html

Project Description

Detection

a. Detection Trapping: The Department maintains a cooperative state/county trapping program for the various exotic insects to provide early detection of any infestation in the state. Traps are serviced by county personnel funded by the Department. The LBAM program uses Jackson traps baited with (E)-11-Tetradecenyl acetate: (E:E)-9, 11-Tetradecadienyl acetate, a male pheromone lure for males. Traps are hung from branches of host trees at specified densities in susceptible areas of Sacramento County. County or State employees inspect these traps bi-weekly throughout the year.

b. Intensive Trapping: Intensive (delimitation) trapping is triggered after a single LBAM is caught in an area not currently infested with LBAM. Following confirmation of the specimen, trap densities in the core square mile(s) are increased within 48 hours in the non-infested portion of Sacramento County. Single light brown apple moth detections that are more than three miles from any other detection will be delimited with 100 traps in the core mile(s) and the 25 traps per square mile in the eight square miles surrounding each core. Traps are serviced once the first week following the detection of an LBAM, then bi-weekly thereafter. Traps may be relocated to available preferred hosts as practical. All monitoring traps will be serviced on a regular schedule for a period of time equal to three generations beyond the date of the last LBAM detection. This time period is determined by

a temperature-dependent developmental model maintained by Pest Detection/Emergency Projects (PD/EP) Branch personnel in Sacramento.

c. Post-Treatment Monitoring: The success of the eradication program is monitored by intensive trapping levels for one life cycle of the moth after the cessation of eradication activities. If no LBAM are caught during that time, trap densities return to detection levels.

Treatment Options

a. Mating Disruption: LBAM pheromone will be used to disrupt the moth's mating activities. The following mating disruption methodologies will be used:

1). Twist Ties: Plastic ties infused with LBAM pheromone will be used in small isolated outlier infestations that are at least five miles from a regulated area or separated from a regulated area by a physical barrier such as large uninhabited areas or mountain range.

2). Ground Application of Pheromone: LBAM pheromone mixed into a sticky carrier and applied from the ground to trees and shrubs in front and backyards to disrupt mating activity in an infested area.

b. Biological Control/Management: Several biological control agents, including parasitic wasps are being evaluated for possible use to support the overall eradication strategy.

c. Pesticidal Control: Within the currently infested area, targeted pesticide applications may be made by ground application to sites with high levels of larval populations.

d. Sterile Insect Technique (SIT): This will be one of the primary tools for the eradication of the LBAM in the State of California when it becomes available. Plans are to release sterile moths into the environment to eradicate the population. USDA has already accelerated the process of developing large-scale mass rearing capabilities in support of LBAM eradication. The initial goal is to produce and release a minimum of 20 million sterile male moths per day at full capacity.

Emergency Defined

“Emergency means a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services.” Public Resources Code Section 21060.3.

Evidence of an Emergency

On April 29 (PDR #1490390) and May 14 (PDR #1490395), 2010, adult male LBAM were trapped in the Ryer Island area of Solano County. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for expanding the quarantine area in this area of Solano and Sacramento counties as this is evidence of an incipient infestation.

To prevent the spread of the LBAM to non-infested areas in order to protect California's agricultural industry and environment, it is necessary to begin delimitation activities against the LBAM immediately in Sacramento County.

The regulatory authority under Section 3591.20 includes, “The searching for all stages of light brown apple moth by visual inspection, the use of traps, or any other means anywhere within the said area.” Therefore, this emergency amendment to Section 3591.20 is necessary to ensure the Department has the best chance to conduct a successful eradication project in the smallest possible area of Sacramento County.

To prevent the spread of the LBAM to non-infested areas in order to protect California's agricultural industry and environment, it is necessary to begin eradication activities against the LBAM immediately in this new area of Sacramento County. Therefore, it is necessary to amend this regulation as an emergency action.

LBAM causes environmental damage which further results in economic damage from feeding by caterpillars, which may:

- destroy, stunt or deform young seedlings;
- spoil the appearance of ornamental and native plants; and
- injure deciduous fruit-tree crops, citrus and grapes.

Wherever LBAM occurs in association with vineyards, it is considered to be a very significant agricultural pest. Unless properly managed, LBAM causes substantial risks to crop yield and quality by causing both direct and indirect damage. Emerging larvae in the spring may feed upon both the flowers and newly set fruitlets causing a direct loss in yield. Later in the year, LBAM larvae feeding on maturing fruit can cause indirect loss by introducing botrytis infections into the grape bunches. As an example, in 1992 in Australia, 70,000 larvae per hectare were documented and caused a loss of 4.7 tons of Chardonnay fruit. Damage in the 1992-93 Chardonnay season at Coonawarra, southern Australia, cost \$2,000 per hectare.

California's 844,000 acres of grapes (526,000 acres of wine grape, 93,000 acres of table grape and 225,000 acres of raisin-type grapes) leads the nation in grape production with 89% of the total. In 2007, grapes were the number two commodity in the state, based on a dollar value of \$3.08 billion dollars, and were among the top three commodities produced in 15 California counties. The total retail value of California grape products was valued at \$16.5 billion in 2006.

In South Australia, LBAM is also a significant pest of apricots and can attack other stone fruit. Peaches are also damaged by feeding that occurs on the shoots and fruit. In 2008,

California had 11,000 acres of apricots valued at \$34,404,000 and 87,000 acres of peaches (nectarine, clingstone and freestone) valued at \$402 million.

The first generation (in spring) causes the most damage to apples while the second generation damages fruit harvested later in the season. Some varieties of apples such as

'Sturmer Pippin' (an early variety), 'Granny Smith' and 'Fuji' (late varieties) can have up to 20 percent damage while severe attacks can damage up to 75 percent of a crop.

In Australia, when insecticides are not applied, typically between five to 20 percent of fruit is damaged, but this can exceed 30 percent. In New Zealand, damage to unsprayed crops commonly reaches 50 percent (Wearing et al., 1991).

In 2008, California had 19,500 acres of apples valued at \$109,708,000.

Exact economic impacts on international and domestic exports are uncertain at this time. California is the nation's leader in agricultural exports and in 2003 shipped more than \$7.2 billion in both food and agricultural commodities around the world. Some countries have specific regulations against this pest, and many others consider it a regulated pest that would not be knowingly allowed to enter. Additional measures, such as preharvest treatments and postharvest disinfestation, would likely have to be taken to ensure that shipments to these countries are free from LBAM. In addition, LBAM is an exotic pest, i.e., it is not established in the continental United States, and therefore other states within the United States would likely impose restrictions on the movement of potentially infested fruits, vegetables and nursery stock. These restrictions could severely impact the domestic marketing of California agricultural products.

Background

The light brown apple moth (*Epiphyas postvittana*) was unexpectedly detected in California (and the US) on February 27, 2007 in Alameda County and on March 7, 2007, the light brown apple moth (LBAM) was first detected in Contra Costa County. Through the deployment of delimitation traps, numerous additional adult male moths were trapped in both counties. As a result, the Department first adopted an emergency regulation, Section 3591.20, Light Brown Apple Moth Eradication Area, which became effective on March 21,

2007. The Department also subsequently adopted Section 3434, Light Brown Apple Moth Interior Quarantine (effective April 20, 2007). The Department continues to deploy both detection and delimitation traps as appropriate, throughout the State.

The United States Department of Agriculture (USDA) determined that LBAM is a federal action pest and on May 2, 2007, issued a federal order regulating the interstate movement of host material from the infested areas of California and all of Hawaii. Subsequent federal orders were issued on September 17 and November 20, 2007, April 28, 2008, July 10 and September 9, 2009 and April 6, 2010. These orders are located at the following website: http://www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/regulations.shtml

LBAM is a highly polyphagous pest that attacks a wide number of fruits and other plants. Hosts occurring in California that are of significant agricultural or environmental concern include, but are not limited to: alder, alfalfa, apple, apricot, avocado, blueberry, blackberry, broccoli, cabbage, camellia, cauliflower, ceanothus, chrysanthemum, citrus, clematis, clover, columbine, cottonwood, currant, cypress, dahlia, ferns, fir, geranium, grape, hawthorn, honeysuckle, kiwi, lupine, madrone, mint, oak, peach, pear, peppers, persimmon, poplar, potato, raspberry, rhododendron, rose, sage, spruce, strawberry, walnut and willow. It is an insect species that feeds upon over 250 species of native and ornamental plants. The general area of infestation contains numerous sensitive plant species and habitats. There is a threat for adverse consequences to some of these sensitive species if LBAM becomes permanently established in California.

Prior to the infestations here, this species had a relatively restricted geographic distribution, being found only in portions of Europe, Oceania and Hawaii. The pest is native to Australia but has successfully invaded other countries. The likelihood and consequences of establishment by LBAM have been evaluated in pathway initiated risk assessments. LBAM was considered highly likely of becoming established in the United States and the consequences of its establishment for United States agricultural and natural ecosystems

were judged to be severe. The United States Department of Agriculture, Animal Plant and Health Inspection Service (USDA, APHIS) estimated that approximately 80 percent of the continental United States may be climatically suitable for LBAM.

In its native habitat of Australia, LBAM generally completes three generations annually. More than three generations can be completed if temperatures and host plants are favorable. In southeastern Australia where it is warmer, four generations can be completed. In contrast, two generations occur in Tasmania, New Zealand and in Great Britain. In Australia, generations do not overlap, but they do in Great Britain. As the population builds, LBAM is more abundant during the second generation. Therefore, the second generation causes the most economic damage as larvae move from foliage to fruit. The size of the third generation is typically smaller than the previous two due to leaf fall (including attached larvae) as temperatures decline in autumn. LBAM does not diapause and its continued development is slowed under cold winter temperatures. In cold climates, the pest overwinters as larvae. Because LBAM causes damage in a wide range of climate types in Australia, pest status is not dictated by climate.

Based upon losses in Australia, annual losses in California are expected to be much higher as the agricultural sector is larger and more variable. Additionally, LBAM, if not eradicated, will cause economic damage to California's export markets due to the implementation of quarantines by foreign and state governments.

Where it occurs, LBAM is difficult to control with sprays because of its leaf-rolling ability, and because there is evidence of resistance due to overuse of the same insecticides. Conifers are damaged by needle-tying and chewing. Larvae have been found feeding near apices of Bishop Pine seedlings where they spin needles down against the stem and bore into the main stem from the terminal bud. LBAM constructs typical leaf rolls (nests) by webbing together leaves, a bud and one or more leaves, leaves to a fruit, or by folding and webbing individual mature leaves. During the fruiting season, they also make nests among

clusters of fruits, such as grapes, damaging the surface and sometimes tunneling into the fruits. During severe outbreaks, damage to fruit may be as high as 85 percent.

Egg masses are most likely to be found on leaves. The larvae are most likely to be found near the calyx or in the endocarp; larvae may also create “irregular brown areas, round pits, or scars” on the surface of a fruit. Larvae may also be found inside furled leaves, and adults may occasionally be found on the lower leaf surface.

LBAM is an actionable pest for the USDA, APHIS and requires the Australian Quarantine and Inspection Service to take corrective actions to prevent this pest from being associated with apples, citrus, pear fruits and other host commodities being exported to the United States. Host fruit exported from New Zealand faces similar restrictions by USDA, APHIS and the New Zealand Ministry of Forestry and Fisheries is responsible for any corrective actions at origin. Any host commodity arriving in the United States that is infested with or contaminated by LBAM is issued a Federal Emergency Action Notice and must be either destroyed, reexported or undergo an appropriate quarantine treatment prior to its release into the United States commerce. Canada and Japan also treat LBAM as a quarantine action pest. The People’s Republic of China requires all host fruit imported to originate from orchards that are free from LBAM.

More information regarding potential economic impact in California may be found in the environmental assessment prepared by USDA at www.aphis.usda.gov/plant_health/ea/downloads/lbam_ea_sc.pdf. In 10 of California’s affected counties, it is estimated that LBAM could cause \$160 to \$640 million in losses. These estimates were derived from the agricultural impacts in Australia and New Zealand. This estimate does not include economic costs to the nursery industry nor to other significant host crops in California such as apricots, avocados, kiwifruit, peaches, etc., grown in other counties.

The United States Department of Agriculture (USDA) determined that LBAM is a federal

action pest and on May 2, 2007, issued a federal order regulating the interstate movement of host material from the infested areas of California and all of Hawaii. Subsequent federal orders were issued on September 17 and November 20, 2007, April 28, 2008, July 10 and September 9, 2009 and April 6, 2010. All of California's fresh floral and nursery products are listed as hosts of LBAM under the federal order. The value of the State's floral and nursery products combined for 2008/2009 was approximately \$3.7 billion.

The Department also relied upon the following documents for this proposed rulemaking action:

Federal Domestic Quarantine Order, *Epiphyas postvittana*, (Light Brown Apple Moth), dated April 6, 2010.

For Information/Action, DA-2008-02, dated January 11, 2008, to State and Territory Agricultural Regulatory Officials, from Rebecca Bech and its attachments.

"Pest Profile," updated March 16, 2007, Kevin Hoffman, California Department of Food and Agriculture.

"Lightbrown apple moth, Exotic host plants-common," printed March 13, 2007, <http://www.hortnet.co.nz/key/stone/info/hostplnt/iba-exo2.htm>.

"Lightbrown Apple Moth Life Cycle," printed March 12, 2007, HortFACT.

"Light Brown Apple Moth, *Epiphyas postvittana*," printed March 12, 2007, Government of South Australia.

"Light brown apple moth development calculator," printed March 12, 2007, NSW Department of Primary Industries.

"Light brown apple moth in citrus," June 2006, Primefact Number: 216.

“Botrytis and the Light Brown Apple Moth,” undated, Bayer CropScience.

“Light Brown Apple Moth Procedures for USA Citrus Export Program,” updated June 2006.

“China Export Quarantine IPM Guide,” January 2006, Steven Falivene, NSW, DPI.

“Mini Risk Assessment, Light Brown Apple Moth, *Epiphyas postvittana* (Walker), [Lepidoptera: Tortricidae], September 21, 2003, Department of Entomology, University of Minnesota.

“Pests and Pest Management, Impact on Climate Change,” February 2000, Dr. Robert W. Sutherst, CSIRO Entomology.

Letter dated June 16, from Frank Carl to A.G. Kawamura.

Letter dated August 3, 2009, from Robert Lilley to A.G. Kawamura.

Letter dated July 13, 2009, from Scott Hudson to A.G. Kawamura.

Letter dated May 19, 2009, from Rick Landon to A.G. Kawamura.

Letter dated April 28, 2008, from Lisa Correia to A.G. Kawamura.

Letter dated March 17, 2008, from William D. Gillette to A.G. Kawamura.

Letter dated July 12, 2007, from Kurt E. Floren to A.G. Kawamura.

Letter dated July 11, 2007, from Jearl D. Howard to A.G. Kawamura.

Letter dated June 1, 2007, from David R. Whitmer to A.G. Kawamura.

Letter dated May 25, 2007, from Ken Corbishley to A.G. Kawamura.

Letter dated May 24, 2007, from Paul J. Matulich to A.G. Kawamura.

Letter dated May 4, 2007, from Eric Lauritzen to A.G. Kawamura.

Letter dated May 4, 2007, from Gail M. Raabe to A.G. Kawamura.

Letter dated April 11, 2007, from Greg Van Wassenhove to A.G. Kawamura.

Letter dated April 4, 2007, from Scott T. Paulsen to A.G. Kawamura.

Letter dated April 3, 2007, from Edward P. Myer to A.G. Kawamura.

Letter dated April 2, 2007, from Dennis F. Bray to A.G. Kawamura.

Letter dated March 30, 2007, from Stacy Carlsen to A.G. Kawamura.

Authority and Reference Citations:

Authority: Sections 407 and 5322, Food and Agricultural Code.

Reference: Sections 407, 5322, 5761, 5762 and 5763, Food and Agricultural Code.

Informative Digest

Existing law also provides that the Secretary may establish, maintain and enforce quarantine, eradication and other such regulations as he deems necessary to protect the

agricultural industry from the introduction and spread of pests (Food and Agricultural Code, Sections 401, 403, 407 and 5322). Existing law also provides that eradication regulations may proclaim any portion of the State as an eradication area and set forth the boundaries, the pest, its hosts and the methods to be used to eradicate said pest (Food and Agricultural Code Section 5761).

The Secretary is proposing to amend this regulation pursuant to the authority in Food and Agricultural Code (FAC) Section 407, “the director may adopt such regulations as are reasonably necessary to carry out the provisions of this code which he is directed or authorized to administer or enforce,” and FAC Section 5322, “the director may establish, maintain, and enforce quarantine, eradication, and such other regulations as are in his or her opinion necessary to circumscribe and exterminate or prevent the spread of any pest which is described in FAC Section 5321.

Section 3591.20. Light Brown Apple Moth Eradication Area.

The proposed amendment of Section 3591.20(a) will establish Sacramento County as an additional eradication area with respect to LBAM. The effect of the amendment of this regulation is to provide authority for the State to perform eradication activities against LBAM in Sacramento County.

Mandate on Local Agencies or School Districts

The Department of Food and Agriculture has determined that the proposed amendment of Section 3591.20 does not impose a mandate on local agencies or school districts and no reimbursement is required under Section 17561 of the Government Code. All eradication activities will be conducted by the Department.

Cost Estimate

The Department has also determined that the regulation will involve no additional costs or savings to any state agency because initial funds for state costs are already appropriated, no

nondiscretionary costs or savings to local agencies or school districts, no reimbursable savings to local agencies or costs or savings to school districts under Section 17561 of the Government Code and no costs or savings in federal funding to the State.