

DEPARTMENT OF FOOD AND AGRICULTURE
PROPOSED CHANGES IN THE REGULATIONS

Title 3, California Code of Regulations

Section 3434, Subsection (b)

Light Brown Apple Moth Interior Quarantine

INITIAL STATEMENT OF REASONS/
POLICY STATEMENT OVERVIEW

Description of Public Problem, Administration Requirement, or Other Condition or
Circumstance the Regulation is Intended to Address

This regulation is intended to address the obligation of the Department of Food and Agriculture to protect the agricultural industry from the movement and spread of injurious plant pests within California.

Specific Purpose and Factual Basis

The specific purpose of Section 3434 is to provide authority to the State to regulate the movement of hosts and possible carriers of light brown apple moth (LBAM), *Epiphyas postvittana*, within or from the regulated areas.

The factual basis for the determination by the Department that the amendment of this regulation is necessary is as follows:

Effective November 10, 2009 (OAL File Number 2009-1105-01 E)

On August 20, 2009 (PDR #1512768), an adult male LBAM was trapped in the Yountville area of Napa County. On October 8 (PDR #1586668) and 21 (PDR #S 1586712, 1586713, 1586714, 1586716 and 1586717), 2009, adult male LBAM were trapped in these areas of Napa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Napa County.

On August 25 (PDR #5038301) and September 30 (PDR #5039620), 2009, adult male LBAM were trapped in the Carmel area of Monterey County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Monterey County.

On August 31, 2009 (PDR # 5038744), an adult LBAM was trapped in the Sunol area of Alameda County. This LBAM is in a location where it is no longer operationally feasible to perform delimitation trapping. A single detection which is not delimited met the regulatory protocol for expanding the quarantine area in this area of Alameda County.

September 3, 2009, (PDR #5043885), an adult male LBAM was trapped in the San Martin area of Santa Clara County. Again, the Department has determined it does not have the resources to delimit this detection. Therefore, this met the regulatory protocol for expanding the quarantine area in this area of Santa Clara County.

September 4, 2009, (PDR #5045129), an adult male LBAM was trapped in the Point Reyes and Petaluma Road area of Marin County. Again, the Department has determined it does not have the resources to delimit this detection. Therefore, this met the regulatory protocol for expanding the quarantine area in this area of Marin County.

On September 8, 2009 (PDR #5045177), an adult male LBAM was trapped in the Cotai area of Sonoma County. On October 21, 2009 (PDR #1537996), an adult male LBAM was trapped in the Penngrove area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. Therefore, this met the regulatory protocol for expanding the quarantine area in these areas of Sonoma County.

On September 29 (PDR #1458320) and 30 (PDR #1458325); and, October 1 (PDR #1458326), 2009, adult LBAM were trapped in the Los Osos area of San Luis Obispo County. These LBAM were trapped within three miles of each other and within one life

cycle. This met the regulatory protocol for expanding the quarantine area in this area of San Luis Obispo County.

On October 1, 2009 (PDR #s 5028924, 5028929 and 5028930), adult LBAM were trapped in the Tracy area of San Joaquin County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of San Joaquin County.

On October 20 (PDR #1578391-San Anselmo and PDR #5045470-Sleepy Hollow), 2009, adult male LBAM were trapped in Marin County. On October 22, 2009 (PDR #5045515), an adult male LBAM was trapped in the Fairfax area of Marin County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Marin County.

This emergency rulemaking action merged the northern boundary of Contra Costa and Marin counties with the boundary of the Napa, Sonoma and Solano contiguous area; expanded existing regulated areas in the counties of Alameda, Marin, Monterey Napa, San Luis Obispo and Santa Clara counties (approximately 111 square miles). It also established a new quarantine area in the Tracy area of San Joaquin County of approximately 27 square miles. This resulted in a total of approximately 3,894 square miles under regulation within the State. The effect of this proposed change to the regulation will be to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional areas.

The existing text under subsection 3434(b)(1) was modified.

The existing text under subsection 3434(b)(4) was deleted.

Existing subsection 3434(b)(5) was renumbered as subsection 343(b)(4)(A) and a new subsection 3434(b)(4)(B) was established.

The existing text under subsection 3434(b)(6) was renumbered as 3434(b)(5) and was modified.

The existing subsections 3434(b)(7), (8) and (9) were renumbered subsections 3434(b)(6), (7) and (8), respectively.

Effective December 31, 2009 (OAL File Number 2009-1223-03 E)

On October 27, 2009 (PDR # 5023710), an adult LBAM was trapped in the Brentwood area of Contra Costa County. This LBAM is in a location where it is no longer operationally feasible to perform delimitation trapping. A single detection which is not delimited met the regulatory protocol for expanding the quarantine area in this area of Contra Costa County.

September 3, 2009, (PDR #5043885), an adult male LBAM was trapped in the San Martin area of Santa Clara County. On September 10 (PDR #5044007) and October 22 (PDR #5043468), 2009, adult male LBAM were trapped in the Gilroy area of Santa Clara County. These LBAM were trapped within three miles of each other and within one life cycle. On October 29, 2009 (PDR #5035811), an adult male LBAM was trapped in the Morgan Hill area of Santa Clara County. The Department has determined it does not have the resources to delimit this detection. Therefore, all these detections met the regulatory protocol for expanding the quarantine area in these areas of Santa Clara County.

On October 26, 2009 (PDR #1519843), an adult male LBAM was trapped in the Fairfield area of Solano County. The Department has determined it does not have the resources to delimit this detection. This met the regulatory protocol for expanding the quarantine area in this area of Solano County.

On October 29, 2009 (PDR #5055678), an adult male LBAM was trapped in the Carmel area of Monterey County. The Department has determined it does not have the

resources to delimit this detection. This met the regulatory protocol for expanding the quarantine area in this area of Monterey County.

On November 2, 2009 (PDR #5023711), two adult male LBAM were trapped in the Santa Barbara area of Santa Barbara County. These LBAM were trapped within three miles of each other and within one life cycle. Therefore, this met the regulatory protocol for expanding the quarantine area in this area of Santa Barbara County.

On July 7 (PDR #5028480) and November 10 (PDR #1578875), 2009, adult male LBAM were trapped in the Davis area of Yolo County. These LBAM were trapped within three miles of each other and within one life cycle. Therefore, this met the regulatory protocol for expanding the quarantine area in this area of Yolo County.

On October 30 (PDR #1586749) and November 2 (PDR #1586754), 2009, adult male LBAM were trapped in the St. Helena area of Napa County. On October 21 (PDR #1586713) and 29 (PDR # 1586747), 2009, adult male LBAM were trapped in the Napa area of Napa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Napa County.

On October 22, 2009 (PDR #5045529), an adult male LBAM was trapped in the Sebastopol area of Sonoma County. On October 23, 2009 (PDR #1537997), an adult male LBAM was trapped in the Rohnert Park area of Sonoma County. On October 28, 2009 (PDR #5045560), an adult male LBAM was trapped in the Cotati area of Sonoma County. On October 21 (PDR #5045479) and October 29 (PDR #5045566), 2009, adult male LBAM were trapped in the Healdsburg area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. Therefore, this met the regulatory protocol for expanding the quarantine area in these areas of Sonoma County.

On December 7, 2009, the Light Brown Apple Moth (LBAM) Program confirmed it has removed all LBAM detection traps from within the contiguous State interior quarantine area except those within a two-mile edge zone along the interior edge of the quarantine. The traps were removed on November 30, 2009. As a result of this action, the program requested that a 145 square mile area encompassing parts of Santa Cruz, Santa Clara and San Mateo counties be included within the State LBAM interior quarantine. The program has determined it does not have the resources to continue to justify placing detection traps in this area which is slowly being engulfed by LBAM. Without detection traps being deployed, this met the regulatory protocol for expanding the quarantine area in this area as it can no longer be determined that LBAM is absent from this area.

Additionally, this made the entire counties of Santa Cruz, San Mateo and San Francisco fall under the State LBAM interior quarantine and they were completely surrounded by portions of counties also within the State LBAM interior quarantine. Thus, the movement of LBAM host materials within these three counties will not affect the quarantine status of these counties nor will it endanger the quarantine status of the neighboring counties. As a result, the program is requested that the State regulation pertaining to the movement of LBAM host material be amended and provide for unrestricted movement of LBAM host material, including nursery stock, within Santa Cruz, San Mateo and San Francisco counties. Further, it is proposed that there be unrestricted movement of LBAM host material from the contiguous neighboring LBAM infested counties into Santa Cruz, San Mateo and San Francisco counties. There were no changes proposed to the regulations pertaining to the movement of LBAM host material out of the counties of Santa Cruz, San Mateo and San Francisco.

This proposed change alleviated intra-county quarantine restrictions on 60 businesses in San Francisco County, 172 businesses in San Mateo County and 56 businesses in Santa Clara County. Additionally, there were over a 1,000 businesses in the contiguous counties under regulation which are now able to ship LBAM host commodities into these three counties without restriction.

This emergency rulemaking action created a regulated and quarantine area. The regulated area is comprised of the entire counties of San Francisco, San Mateo and Santa Cruz. This total regulated area is approximately 950 square miles and is a result of expanding the regulated area in San Mateo and Santa Cruz counties by approximately 120 square miles.

The contiguous quarantine area in the counties of Contra Costa, Monterey, Napa, Santa Clara, Solano and Sonoma counties was expanded by approximately 175 square miles. A new quarantine area of approximately nine square miles was established in the Santa Barbara area of Santa Barbara County. The quarantine area in Davis, Yolo County was expanded by approximately three square miles and in the Healdsburg area of Sonoma County expanded by approximately two square miles.

This resulted in a total of approximately 4,203 square miles under regulation within the State. The effect of this proposed change to the regulation was to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional quarantine areas and remove restrictions for moving within or into the regulated area from the contiguous quarantine area.

The existing text under subsection 3434(b)(1) was modified.

The new subsection 3434(b)(6) was added.

The existing subsections 3434(b)(6), (7) and (8) were renumbered as subsections 3434(b)(7), (8) and (9).

The existing text under subsection 3434(c) was moved to a new subsection 3434(d) and new text was added to subsection 3434(c).

A new subsection 3434(d) was established.

The existing subsection 3434(d) was renumbered as subsection 3434(e) and modified.

A new subsection 3434(e)(1)(F) was established.

A new subsection 3434(e)(3) was established along with subsections 3434(e)(A), (B), (C), (D), (E) and (F).

Effective January 25, 2010 (OAL File Number 2010-0121-03 E)

On November 24, 2009 (PDR #5036355), an adult male LBAM was trapped in the Sunol area of Alameda County. The Department has determined it does not have the resources to delimit this detection. This met the regulatory protocol for expanding the quarantine area in this area of Alameda County.

On December 1 (PDR #1372504) and 21 (PDR #1308892), 2009 adult male LBAM were trapped in the Long Beach area of Los Angeles County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Los Angeles County.

On October 28, 2009 (PDR #s 5055565 and 5055566), adult male LBAM were trapped in the Salinas area of Monterey County. On October 28, 2009 (PDR # 5055580), an adult male LBAM was trapped in the Soledad area of Monterey County. On November 11 (PDR # 5042799), December 3 (PDR #5056189) and 9 (PDR #5056398), 2009, adult male LBAM were trapped in the Gonzales area of Monterey County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Monterey County.

November 2 (PDR #5035849), 4 (PDR #s5042851 and 5042856) and December 9 (PDR #5036690) and 10 (PDR #5036617), 2009, adult male LBAM were trapped in the

San Jose area of Santa Clara County. On October 27 (PDR #5055517) and December 9 (PDR #5056822), 2009, adult male LBAM were trapped in the Gilroy area of Santa Clara County. On November 12 (PDR #5042188) and 25 (PDR #5056053), 2009, adult male LBAM were trapped in the Morgan Hill area of Santa Clara County. These LBAM were trapped within three miles of each other and within one life cycle. Therefore, all these detections met the regulatory protocol for expanding the quarantine area in these areas of Santa Clara County.

On October 22, 2009 (PDR #5045529), an adult male LBAM was trapped in the Sebastopol area of Sonoma County. On November 19, 2009 (PDR #5045681), an adult male LBAM was trapped in the Graton area of Sonoma County. On November 2 (PDR #1537865) and 19 (PDR #1465905), adult male LBAM were trapped in the Petaluma area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. On November 6 (Sonoma area - PDR #5045629) and 10 (Glen Ellen area -PDR #5045636), 2009, adult male LBAM were trapped in Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. On June 23 (PDR #1537915) and November 13 (PDR #1537867), 2009, adult LBAM were trapped in the Santa Rosa area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. On October 29 (PDR #5045566) and December 17 (PDR #5045738), 2009, adult LBAM were trapped in the Healdsburg area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. Therefore, this met the regulatory protocol for expanding the quarantine in these areas of Sonoma County.

Portions of contiguous quarantine area in the counties of Alameda, Santa Clara and Sonoma counties were expanded by approximately 91 square miles. The quarantine area in Healdsburg, Sonoma County was expanded by approximately two square miles and the Gonzales area of Monterey County was expanded by approximately 17 square miles.

This resulted in a total of approximately 4,313 square miles under regulation within the State. The effect of this proposed change to the regulation was to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional quarantine areas.

The existing text under subsection 3434(b)(1) was modified.

The existing text under subsection 3434(b)(2) was modified.

The existing text under subsection 3434(b)(3)(B) was modified.

The existing text under subsection 3434(b)(8) was modified.

The light brown apple moth (*Epiphyas postvittana*) was first detected in California 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 delimiting detection traps, numerous additional adult male moths were trapped in both counties. As a result, the Department adopted an emergency regulation, Section 3591.20, which became effective on March 21, 2007. The Department continued to deploy detection traps in additional counties. As a result of multiple detections of LBAM, the Department amended Section 3591.20 to add the counties of Marin and San Francisco (effective April 3, 2007); Santa Clara County (effective April 20, 2007); Monterey, San Mateo and Santa Cruz counties (effective April 23, 2007); and, Napa County (effective June 5, 2007). The Department also proposed the emergency adoption of Section 3434, Light Brown Apple Moth Interior Quarantine (effective April 20, 2007). Emergency amendments to Section 3434 were subsequently made adding portions of Alameda, Contra Costa, Marin, Monterey, San Benito, San Mateo and Santa Cruz counties (effective June 6, 2007) and Napa County (effective June 7, 2007).

On May 2, 2007, the United States Department of Agriculture (USDA) issued a federal order regulating the interstate movement of host material from the infested areas of California and all of Hawaii. Another federal order issued was on April 28, 2008 and included Sonoma and Santa Barbara counties.

On June 21, 2007, emergency amendments to the State regulation were effective adding portions of Alameda, Monterey and Santa Cruz counties; and, including all harvested fruits and vegetables as regulated commodities. On July 18, 2007, emergency amendments were effective adding portions of Alameda, Contra Costa, Los Angeles, Marin, Monterey, San Francisco, San Mateo, Santa Clara, Santa Cruz and Solano counties. On August 21, 2007, emergency amendments were effective adding additional portions of the counties of Alameda, Monterey, San Francisco, San Mateo, Santa Clara, Santa Cruz and Solano. On September 28, 2007, emergency amendments were made, primarily to merge some of the regulated areas of Alameda, Contra Costa, Marin, San Francisco, San Mateo and Santa Clara counties into one regulated area. On November 8, 2007, an emergency amendment became effective which increased the regulated areas of Half Moon Bay and Pescadero, San Mateo County; and, the jointly regulated areas of Monterey and Santa Clara counties. Emergency amendments were made adding (San Mateo and Santa Clara counties) and removing areas (Los Angeles, Marin, Monterey, Napa and Santa Clara counties - effective November 29, 2007); removing an area (Oakley, Contra Costa County - effective December 3, 2007); and, on December 21, 2007, several expansions became effective for areas in Contra Costa, San Mateo and Santa Clara counties. Subsequent emergency amendments were made expanding or removing existing regulated areas which were effective on February 4 and 8, March 12, 17, and 21, April 8 and 18, May 2 and 7, 2008 and establishing the Sonoma area of Sonoma County (effective May 2, 2008).

On May 15, 2008, a new regulated area was established in the Martinez area of Contra Costa County; and, areas were expanded in the Vallejo area of Solano County, the Mountain View, Palo Alto and San Jose areas of Santa Clara County and the Belmont,

Redwood City and San Carlos areas of San Mateo County. Subsequent emergency amendments were made effective May 23, June 11 and 16, July 11 and 28, August 13, 18 and 26, September 10 and 23, October 14 and 20, November 12, December 12, 2008; January 14, February 27; March 5, 10 and 30, April 27, May 20 and 26, 2009.

In late October 2007, the USDA established a new regulatory protocol which was distributed to county agricultural commissioners as "Phytosanitary Advisory No. 31-2007." This regulatory protocol was adopted based upon the recommendations of the LBAM Technical Working Group (TWG). The purpose of the protocol is to determine when it is appropriate to initiate or remove interstate regulatory restrictions pertaining to LBAM in response to new detections or the elimination of incipient LBAM populations. A key component of this regulatory protocol is the revision of the triggers for initiating a regulated area. Under the recommendations of the TWG, a single detection (trapping) of a male LBAM more than three miles from another male LBAM, no longer warrants a quarantine response. This is contingent upon the deployment of LBAM traps at the appropriate delimitation levels in buffer areas surrounding the single detection. Prior to this regulatory protocol, the detection of a single LBAM was the agreed upon trigger for initiating a quarantine area. The Department reviewed and concurs with this new protocol and is applying the same criteria contained in it to initiate or remove LBAM regulatory restrictions pertaining to the intrastate movement of regulated articles and commodities.

The Department uses Geographic Information Systems (GIS) mapping programs to plot the locations of all the detections of LBAM. As a result, based upon the criteria contained in the USDA regulatory protocol, the Department determined that there are new infestations of LBAM requiring the expansion of regulated areas.

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.

LBAM causes 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.

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.

Wherever LBAM occurs in association with vineyards, it is considered to be a very important 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.

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.

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). 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.

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.

The majority of California does have a climate which would favor the LBAM. Additionally, LBAM may have seven or more generations under some California climatic conditions. If unchecked, this would enable LBAM to build higher population levels in California. Given the known economic damages occurring in LBAM's present range, its potential damage to California's environment and agricultural industry could be devastating, especially without adequate control measures.

Unless the State's LBAM regulation is substantially the same as the LBAM federal regulation and orders, the USDA cannot regulate less than the entire State. As an example, on January 11, 2008, the USDA issued a Federal Order that expanded its citrus greening (CG) quarantine to encompass the entire State of Florida. This action was a result of the USDA confirming detections of CG in two new Florida counties: Lake

and Hernando. Following discussions with the State of Florida, the USDA determined that parallel quarantine actions proposed by the State of Florida were not adequate and, therefore, it was necessary to impose statewide restrictions on the movement of all live host plants and host plant parts from Florida.

Therefore, it was necessary to amend this regulation as an emergency action.

Estimated Cost of Savings to Public Agencies or Affected Private Individuals or Entities

The Department of Food and Agriculture has determined that the adoption and subsequent amendments of Section 3434 do not impose a mandate on local agencies or school districts and no reimbursement is required under Section 17561 of the Government Code. Each county commissioner in a regulated county requested the State to implement the regulated areas in their county and there are no costs associated with removing areas from the regulation.

The Department also has determined that no savings or increased costs to any state agency, no reimbursable costs or savings under Part 7 (commencing with Section 17500) of Division 4 of the Government Code to local agencies or school districts, no nondiscretionary costs or savings to local agencies or school districts, and no costs or savings in federal funding to the State will result from the adoption and subsequent amendments of Section 3434.

The cost impact of the changes in the regulations on private persons and businesses are expected to be insignificant.

The Department has determined that the proposed actions will not have a significant adverse economic impact on housing costs or California business, including the ability of California businesses to compete with businesses in other states. The Department's determination that the action will not have a significant statewide adverse economic impact on business was based on the following:

Within the quarantine area, the Department has determined there are approximately 267 production nurseries (includes cut flower producers). The nursery or growing grounds must be free from LBAM to ship within or outside the regulated area. To achieve this, nurseries must implement an integrated pest management (IPM) program. One grower may use a mating disruption program, another may use a mating disruption program plus a pesticide, another may use an organic pesticide only, etc. The Department does not specify what constitutes an appropriate IPM program. It has established a performance standard. Whatever IPM program the producer uses with success to keep the nursery stock free from LBAM is acceptable.

If the IPM program fails, a production nursery (including cut flowers) with an active LBAM infestation must eliminate LBAM from the nursery or from a specific lot of nursery stock in order to be eligible for quarantine certification. There are at least 24 pesticides registered for use in California that are efficacious against LBAM and may target different life stages (egg, larvae, pupae and adult). The grower may choose from this existing list or may present another compound if it is registered for use in California and there is scientific evidence that it is efficacious against LBAM. It takes approximately 10 days for LBAM eggs to hatch and the larvae to be susceptible to a larvicide. If a grower chooses to use a material that is not ovicidal, they must wait 10 days for a reinspection by an authorized agricultural official to determine that no live life stages of LBAM are present and the product is eligible for certification. If they use a product that is an ovicide and a larvicide, the reinspection may occur within the time period specified on the product's label.

The Department acknowledges that it may be a significant cost to a producer to eliminate LBAM from an infested area/growing grounds. Where a nursery is infested, the biological risk of all life stages being present: egg, larvae, puparium, and adults are extremely likely. The eggs, larvae, puparium and adults may be present in the foliage. There are many variables that may impact the actual cost for compliance. There are currently 24 different labeled products that are registered for use in California and which

may be used for treatment to obtain quarantine certification. Some of these products may either be used singly or must be used in combination and this is dependent upon the nursery's production methods; stage of development of the nursery stock; the biological risk to exposure of the nursery stock to infestation; and, the nursery's production and sales needs. The costs for these products all vary at both the retail and wholesale levels. The costs will also vary based upon the given volume purchased at any one time.

The length of time to treat an acre varies greatly depending on whether it is field planted, containerized, the size of the container holding the nursery stock (one gallon container versus 36" box), the size and spacing of the containers, walkways, roadway, etc.

Other factors that may affect the cost of compliance include:

- The type of material used affects the quantity and formulation of the active ingredient in the material.
- How long the nursery stock is held at the affected nursery prior to its sale and the need to have replacement stock in the production cycle.
- Pending sales contracts may vary from nursery to nursery and drive the nursery's choice of approved materials to use.
- Labor costs may vary from nursery to nursery.
- Whether the nursery has a qualified pesticide applicator on site or has to hire one varies from nursery to nursery and size of the nursery may be a factor.
- The availability of the necessary treatment equipment and type of equipment may vary from nursery to nursery.
- There may be a substantial difference between start-up and ongoing costs.
- The physical location of the growing grounds relative to the labor cost for that area.

Therefore, rather than there being a single prescriptive treatment, there are a number of possible treatments available to ensure that the performance standard (i.e. treated in a manner to eliminate live life stages of LBAM from nursery stock) is met based upon the biological risk of the nursery stock harboring a live life stage of LBAM. Once the LBAM infestation has been eliminated, the producer may go back to an IPM program.

Based on the preceding information, it was determined that the amendment of Section 3434 may have an adverse economic impact on some nursery businesses, but it is not expected to be significantly adverse. For the most part, there are a number of optional ways to comply that are available to the affected businesses so they may select the means with the lowest cost and easiest implementation for them. The highest costs would be for an infested nursery. The most expensive material (Entrust) costs approximately \$97 per acre for material. The least expensive material costs approximately \$15 per acre. This excludes the labor and any pesticide applicator and equipment costs.

Assuming 65,000 one gallon containers per acre, the average time to treat one acre is approximately 1.5 hours. The labor costs for application may vary from \$7.50 to \$10/hour. Using the higher labor cost, that would be \$15 per acre for labor. The highest material and labor costs per acre would be \$112 per acre and the lowest cost would be \$30 per acre. At the highest rate this translates into an approximate increased production cost of \$0.002 per one gallon container.

The Department does not have any reasonable way to project equipment or consulting costs, if needed by the producer.

The Department also obtained information directly from two nursery operations, one in Santa Clara County and one in San Mateo County. The nursery in San Mateo County indicated that it cost approximately \$5,140 to treat 23.5 acres. Assuming all one gallon containers, this translates into an approximate increased production cost of \$0.003 per one gallon container. The nursery in Santa Clara County spent \$6,336 to treat 45

acres. Again, assuming all one gallon containers, this translates into an approximate increased production cost of \$0.002 per one gallon container.

Within the quarantine area, the Department has determined there are retail nurseries. The nursery stock offered for sale at a retail nursery must also be free from LBAM. A retail nursery found with an active LBAM infestation must eliminate LBAM from the nursery or from a specific lot of nursery stock in order to be eligible to continue sales to the general public. The retailer also has a choice of at least 24 pesticides registered for use in California that are efficacious against LBAM and may target different life stages. However, due to the nature of the retail business, it may not be practical to treat plant material on the premise and hold for reinspection prior to resuming sales. Some retailers may choose to send the plant material back to the producer (if it can be done safely) or destroy the plant material and bring in new plant material from a producer that is free from LBAM to ensure they can immediately resume sales to the public.

Nursery stock that is infested with LBAM does not meet the current requirements of Section 3060.2, Standards of Cleanliness, California Code of Regulations (CCR), and cannot be sold anyway. This regulation requires that all nursery stock must be kept free from pests that are of limited distribution, including pests of major economic importance which are widely, but not generally distributed within California. The LBAM is a major economic plant pest of State, national and international quarantine concern. The costs associated with keeping nursery stock free from LBAM would be incurred by the affected nurseries, regardless of this regulation. Therefore, for nurseries, there are no additional mandated costs of compliance solely associated with the adoption and subsequent amendments of this regulation.

Fruits and vegetables may move from community gardens and host crop producers if inspected and found free from LBAM. The Department does not mandate any specified treatments. As long as the harvested fruits and vegetables are free from LBAM life stages, the product is free to move within or from the regulated area. The Department has inspectors that perform the required inspections at the affected industry's natural

control points (field or cold storage facility) with no costs. Therefore, the Department is not aware of any specific costs for compliance with this regulation.

Cold storage facilities are required to safeguard harvested fruits and vegetables from becoming infested by the adult LBAM female laying eggs on it. The female LBAM only flies at night so there are minimum safeguarding actions needed. The Department is not aware of any specific costs for compliance with this regulation.

Within the quarantine area, the Department has determined there are landscape maintenance companies and green waste companies that handle green waste movement from or within the regulated area. Movement of such material must be conducted in a manner that precludes the escape of any possible live life stages of LBAM. Green waste may move within or from the regulated area if it is certified as originated from an uninfested area or inspected or treated by an authorized agricultural official or under the terms of a permit issued by the Department. Approved methods of treatment include maintaining the green waste completely enclosed in containers or plastic bags, or completely covered with fine mesh or tarps, or moved in an enclosed truck or trailer or chipped and shredded on site prior to movement to an authorized disposal site. All of these methods are very inexpensive and are already required as a condition of movement on public roadways by other State and/or local agencies. Therefore, these methods of treatment would not represent a significant economic impact.

For the majority of businesses, no additional costs will be incurred.

Currently the United States Department of Agriculture's Federal Domestic Quarantine Order for LBAM restricts the interstate movement of host commodities produced in the California counties of Alameda, Contra Costa, Los Angeles, Marin, Monterey, Napa, San Benito, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma and Yolo. The emergency adoption and subsequent

emergency amendments to Section 3434 were necessary to ensure the State's regulation continued to be substantially the same as the federal order. If the State's regulation is not substantially the same as the federal order, the USDA cannot regulate less than the entire State. Under Section 3434, the total regulated area in California is now approximately 4,313 square miles.

There are approximately 3,718 production nurseries and 7,099 cut flower producers located in California. Of these, approximately six percent (635) are located within the regulated area. Many of the businesses located outside the current regulated area are interstate shippers. Therefore, this regulatory action was necessary to provide the majority of potentially affected California businesses, which are not inside the current State regulated area, the continued ability to compete with businesses in other states without unnecessary federal restrictions on California's interstate commerce.

There are 6,454 retail nurseries located throughout the State. Of these approximately 97 percent (6,156) are located outside the regulated area. Again, nursery stock that is infested with LBAM does not meet the current requirements of Section 3060.2, Standards of Cleanliness, California Code of Regulations (CCR), and cannot be sold. This regulation helps protect 97 percent of the retail nurseries located within California from ever having to incur losses due to LBAM.

Assessment

The Department has made an assessment that the repeal of the regulation would not 1) create or eliminate jobs within California; 2) create new business or eliminate existing businesses with California; or 3) affect the expansion of businesses currently doing business with California.

Alternatives Considered

The Department of Food and Agriculture must determine that no alternative considered would be more effective in carrying out the purpose for which the action is proposed or

would be as effective and less burdensome to affected private persons than the proposed action.

Information Relied Upon

The Department relied upon the following studies, reports, and documents in the proposed adoption and subsequent amendment of Section 3434:

Email dated December 11, from Ryan Momberger to Stephen Brown.

Email dated December 7, 2009, from Bob Dowell to Stephen Brown.

Email dated October 27, 2009, from Jaccie Vang to Perry Poe.

Federal Domestic Quarantine Order, *Epiphyas postvittana*, (Light Brown Apple Moth), DA-2009-46.

Federal Domestic Quarantine Order, *Epiphyas postvittana*, (Light Brown Apple Moth), DA-2008-17.

Federal Domestic Quarantine Order, *Epiphyas postvittana*, (Light Brown Apple Moth), DA-2007-42.

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

“Light Brown Apple Moth (LBAM) Approved Treatments for Nurseries and Host Crops,” revised August 28, 2008, California Department of Food and Agriculture.

“Establishments Affected by the Light Brown Apple Moth,” dated June 10, 2008, Permits and Regulations, California Department of Food and Agriculture.

Phytosanitary Advisory No. 31-2007, dated October 31, 2007, “Federal Domestic Quarantine Order Protocol,” California Department of Food and Agriculture.

“LBAM Interior Quarantine Estimated Cost Basis,” dated July 27, 2007, Permits and Regulations, California Department of Food and Agriculture.

“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 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.

Alameda County

“Pest and Damage Record #5038744,” dated August 31, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5036355,” dated November 24, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Contra Costa County

“Pest and Damage Record #5023710,” dated October 27, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Los Angeles County

“Pest and Damage Record #1372504,” dated December 1, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1308892,” dated December 21, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Marin County

“Pest and Damage Record #5045129,” dated September 4, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #s 1578391 and 5045470,” dated October 20, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5045515,” dated October 22, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Monterey County

“Pest and Damage Record #5038301,” dated August 25, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5039620,” dated September 30, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #s 5055565, 5055566 and 5055580,” dated October 28, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5055678,” dated October 29, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5042799,” dated November 11, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5056189,” dated December 3, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5056398,” dated December 9, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Napa County

“Pest and Damage Record #1512768,” dated August 20, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1586668,” dated October 8, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #s 1586712, 1586713, 1586714, 1586716 and 1586717,” dated October 21, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1586747,” dated October 29, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1586749,” dated October 30, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1586754,” dated November 2, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

San Joaquin County

"Pest and Damage Record #s 5028924, 5028929 and 5028930," dated October 1, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

San Luis Obispo County

"Pest and Damage Record #1458320," dated September 29, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #1458325," dated September 30, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #1458326," dated October 1, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Santa Barbara County

"Pest and Damage Record #023711," dated November 2, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Santa Clara County

"Pest and Damage Record #5043885," dated September 3, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5055517," dated October 27, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5035811," dated October 29, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5035849," dated November 2, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #s 5042851 and 5042856" dated November 12, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5056053," dated November 25, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #s 5036690 and 5056822," dated December 9, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5036617," dated December 12, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Solano County

"Pest and Damage Record #1519843," dated October 26, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Sonoma County

"Pest and Damage Record #1537915," dated June 23, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5045177," dated September 8, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5044007," dated September 10, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #s 5045479 and 1537996," dated October 21, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #s 5045529 and 5043468," dated October 22, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #1537997," dated October 23, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5045560," dated October 28, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5045566," dated October 29, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #1537865," dated November 2, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5045629," dated November 6, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record #5045636," dated November 10, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1537867,” dated November 13, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #s 5045681 and 1465905,” dated November 19, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #5045738,” dated December 17, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Yolo County

“Pest and Damage Record #5028480,” dated July 7, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1578875,” dated November 10, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.