DEPARTMENT OF FOOD AND AGRICULTURE
PROPOSED CHANGES IN THE REGULATIONS
Title 3, California Code of Regulations
Section 3434, Subsection (b) and (c)
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:

The Department uses Geographic Information Systems (GIS) mapping programs to plot locations of all the detections of LBAM. As a result, based upon the criteria contained in the USDA regulatory protocol, the Department determined that the infestation of LBAM has spread and it is necessary to expand the quarantine and regulated areas as noted below.

The South Park area of San Diego County, Manteca area of San Joaquin County and Davis area of Solano and Yolo counties will be removed. The following are highlights of the proposed expansions: the Ryer Island area (Sacramento and Solano counties),

Tracy area (Alameda and San Joaquin counties) and Fairfield area (Solano County) will cease to be individual quarantine areas and will be incorporated into the regulated area; new quarantine areas will be established in the Whittier area (Los Angeles County), the Foothill Farms area (Sacramento County), the Galt area (Sacramento and San Joaquin counties), the Acampo, Clements, Kings Island and Lockeford areas (San Joaquin County), the Cayucos area (San Luis Obispo County), the Vacaville area (Solano County) and; Carpinteria and Goleta areas (Santa Barbara). The existing quarantine areas will be expanded in the Allendale area (Solano County), Gonzales and Soledad areas, (Monterey County) Long Beach area (Los Angeles County), Sacramento area (Sacramento and Yolo counties), Los Osos area (San Luis Obispo County) and along the leading edge of the existing regulated area

**Quarantine Areas** (Section 3434(b))

**Solano and Yolo Counties**

Eradication was declared in the Davis area of Solano and Yolo counties on December 2, 2011. Therefore it is no longer necessary to have this area under quarantine and the Department is proposing to remove it.

**San Diego County**

Eradication was declared in the South Park (also called San Diego) area of San Diego County on October 11, 2011. Therefore it is no longer necessary to have this area under quarantine and the Department is proposing to remove it.

**San Joaquin County**

Eradication was declared in the Manteca area of San Joaquin County on September 15, 2011. Therefore it is no longer necessary to have this area under quarantine and the Department is proposing to remove it.

**Los Angeles County**

Long Beach

LBAM continues to be trapped in the Long Beach area. Male moths were detected on January 10 (PDR #1310108) and (PDR #1310109), August 22 (PDR #s 190P06006270 and 190P06006271), 29 (PDR #s 190P06006276 and 190P06006277) and 31 (PDR #190P06006279), September 14 (PDR #s 190P06006287, 190P06006288 and 190P06006289), 15 (PDR #190P06006291), 19 (PDR #s 190P06006296 and 190P06006296), 21 (PDR #s 190P06006301, 190P06006302 and 190P06006303) and 22 (PDR #190P06006305), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for expanding the existing quarantine area.

Whittier

For the first time a LBAM was trapped in the Whittier area. A male moth was detected on September 12 (PDR #190P06006283), 2011. The Department does not have the resources to perform the required delimitation activities. This meets the regulatory protocol for establishing a new quarantine area.

**Sacramento County**

Foothill Farms

For the first time LBAM were trapped in the North Highlands area. Male moths were found on July 6 (PDR #1496293), August 2 (PDR #1578990) and September 7 (PDR #1578995). These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for establishing a new quarantine area.

**Sacramento and San Joaquin Counties**

Galt

For the first time LBAM was trapped in the Galt area. A male moth was found on October 12 (PDR #1496968), 2011. The Department does not have the resources to

delimit this find. This detection meets the regulatory protocol for establishing a new quarantine area.

**Sacramento and Yolo Counties**

Carmichael, Courtland, Elk Grove, Sacramento and West Sacramento Areas

LBAM continues to be trapped in the Sacramento area. On April 20, 2011 (PDR #1578950) and May 4 (PDR #1496318), 9 (PDR #s 1496319, 1578980 and 1578981), 10 (PDR #1496320) and 11 (PDR #1609018), June 27 (PDR #1496291), 29 (PDR #1496292), July 7 (PDR #1496294) 8 (PDR #s 1496295, 1496296 and 1628916), 11 (PDR #1578986), 14 (PDR #1496299), 21 (PDR #1578988) and 26 (PDR #s 1496613 and 1496669), August 11 (PDR #1578993), September 16 (PDR #1496842) and 19 (PDR #1496843), 2011, adult male LBAM were detected in the Sacramento area of Sacramento 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.

**San Joaquin County**

Acampo

For the first time LBAM were trapped in the Acampo area. Male moths were found on July 8 (PDR #1560315), 22 (PDR #1560320) and 25 (PDR #1560322), August 1, (PDR #1432671), September 9 (PDR #1578997), 16 (PDR #1560364) and 30 (PDR #1560373), October 17 (PDR #1578050), November 2 (PDR #s 1578052 and 1578053); and, December 1 (PDR # 390P06038503), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for establishing a new quarantine area.

Clements

For the first time LBAM were trapped in the Clements area. Male moths were found on June 10 (PDR #1560123), 23 (PDR # 1560304) and 24 (PDR #1560305), August 19 (PDR #1560390); and, October 12, (PDR #1644436), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the

regulatory protocol for establishing a new quarantine area. Additionally, LBAM larvae were collected from various host material on June 28 (PDR #s 1432430, 1432431, 1432432, 1432433, 1432939, 1432940, 1432941, 15660277, 1560278 and 1560279), 2011. This is also indicative of an incipient infestation.

King Island

For the first time LBAM were trapped in the King Island area (Some PDRs will have a Lodi address). Male moths were found on July 26 (PDR #s 1560377 and 1560378), August 11 (PDR #1560384), September 26 (PDR #1560370), October 17 (PDR #1644443), 18 (PDR #1644440), 19 (PDR #1644444) and 20 (PDR #S 1644446 and 1644447); and, November 1 (PDR #1644449), 3 (PDR #1644478) and 15 (PDR # 1644481), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for establishing a new quarantine area.

Lockeford

For the first time LBAM were trapped in the Lockeford area (Some PDRs will have a Lodi address). Male moths were found on July 26 (PDR # 1560351), August 1 (PDR # 1432947); and, November 10 (PDR # 1426794) and 15 (PDR # 1644482), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for establishing a new quarantine area.

**San Luis Obispo County**

Cayucos

For the first time LBAM was trapped in the Cayucos area. Male moths were detected on June 15 (PDR #1270058), July 27 (PDR #1335873), August 15 (PDR #1756354) and 16 (PDR #1576355), September 15 (PDR #5061757), October 19 (PDR #5061754), and 20 (PDR #s 5061782 and 5061780); and, November 7 (PDR #5065605), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for establishing a new quarantine area.

Los Osos

LBAM continues to be trapped in the Los Osos area. Male moths were detected on February 3 (PDR #5065678) and 7 (PDR #5065677), June 30 (PDR #1270066), September 7 (PDR #1335875), October 6 (PDR #5061755), 12 (PDR #5061749), 18 (PDR #5061750), 25 (PDR #5061783), 26 (PDR #s 5061751 and 5065602) and 27 (PDR #5061752); and, November 7 (PDR #5061787) and 15 (PDR #5065646), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for expanding the existing quarantine area.

**Santa Barbara County**

Carpinteria

For the first time LBAM was trapped in the Carpinteria area. Five male moths were trapped on December 8 (PDR #(BU0P06007469), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for establishing a new quarantine area.

Goleta

For the first time LBAM was trapped in the Goleta area. Male moths were detected on October 11 (PDR #BU0P06007462), 24 (PDR #s 5065920, 5065921 and 5065922) and 26 (PDR #s 5065923, 5065924 and 5065925); and, November 7 (PDR #s 5065940, 5065942 and BU0P06007465), 17 (PDR #s 1451127 and 1451128) and 21 (PDR #s 5065943, 5065945 and 5065946), December 6 (PDR #5065958), 2011. These LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for establishing a new quarantine area.

**Solano County**

Allendale

LBAM continues to be trapped in the Allendale area. On male moths were detected on March 22, PDR #s 1465458 and 1465459) and May 24 (PDR #1413711), 2011. These

LBAM were trapped within three miles of each other and within one life cycle. These detections meet the regulatory protocol for expanding the existing quarantine area.

Vacaville

For the first time LBAM was trapped in the Vacaville area. A male moth was detected on June 24 (PDR #1474111), 2011. The Department does not have the resources to delimit this find. This detection meets the regulatory protocol for establishing a new quarantine area.

**Regulated Area** (Section 3434(c))

**Monterey County**

Gonzales and Soledad Areas

On May 11, 2011 (PDR #5041306), an adult male LBAM was trapped in the Gonzales area of Monterey County. On June 9, 2011 (PDR #5041435), an adult male LBAM was trapped in the Soledad area of Monterey County. These LBAM detections will not be delimited and meet the criteria for expanding the regulated area.

**Sacramento County**

Delta and Walnut Gove Areas

LBAM continue to be trapped in the Walnut Grove area. On June 24 (PDR #1496632), 27 (PDR #1496635) and 28 (PDR #1496636), July 25 (PDR #1496641), August 1 (PDR #s1496643 and 1496644), 2 (PDR #1496646), 3 (PDR #1496876), 4 (PDR #s 1496877 and 1496880) and 22 (PDR #1496899), September 6 (PDR #s 1496944 and 1496945), 22 (PDR #1496991) and 30 (PDR #1496967), 2011. 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 which results in it merging with the regulated area.

**San Joaquin County**

Mountain House and Tracy Areas

LBAM continue to be trapped in the Mountain House and Tracy areas. Adult male LBAM were trapped on May 6 (PDR #1644949) and 20 (PDR #1560118), June 22 (PDR #1432670), July 1 (PDR #1560312) and November 21 (PDR #1644485), 2011. 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 which results in it merging with the regulated area.

Birds Landing, Collinsville, Fairfield and Suisun Areas

LBAM continue to be trapped in the Birds Landing, Collinsville, Fairfield and Suisun areas. Adult male LBAM were trapped on May 18 (PDR #1474081), 23 (PDR #s 1474087 and 1474088), June 6 (PDR #1474107), July 5 (PDR #s 1474136 and 1474137), 6 (PDR #s 1474138, 1474139, 1474141 and 1474142) and 20 (PDR #1474145), August 19 (PDR #1474122), September 13 (PDR #1655806) and 27 (PDR #1626065) and October 11 (PDR #s 1626066 and 1626067), 2011. 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 which results in it merging with the regulated area.

Rio Vista Area

LBAM continue to be trapped in the Rio vista area. Adult male LBAM were trapped on May 11 (PDR #1474078) and 25 (PDR #s 1474093 and 1474094), June 10 (PDR #1474110), September 22 (PDR 31626063) and 29 (PDR #1655812), 2011. 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 which results in it merging with the regulated area.

Vallejo

LBAM continue to be trapped in the Vallejo area. Adult male LBAM were trapped on June 6 (PDR #1474125), July 5 (PDR #1474116) and 7 (PDR #1474117), 2011. 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 which results in it merging with the regulated area.

Walnut Grove Area

LBAM continue to be trapped in the Walnut Grove area. Adult male LBAM were trapped on April 28 (PDR #1465545), May 4 (PDR #1578979), July 8 (PDR #1474155) and 22 (PDR #s 1474158 and 1474159), August 5 (PDR #1474160) and 19 (PDR #1474164), September 30 (PDR #s 1474168 and 1474172), October 13 (PDR #s 1465471 and 1474174) and November 1 (PDR #1465474), 2011. 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 which results in it merging with the regulated area.

**Text Changes**

The existing text under subsection 3434(b)(1) was deleted and this quarantine area was incorporated into subsection 3434(c)(2).

The existing text under subsection 3434(b)(2) was modified and renumbered as subsection 3434(b)(1)(A) and a new subsection 3434(b)(1)(B) was added.

A new subsection 3434(b)(2) was added.

A new subsection 3434(b)(3) was added.

The existing text under subsection 3434(b)(3) was modified and renumbered as subsection 3434(b)(4).

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

The existing text under subsection 3434(b)(5) was deleted and new subsections 3434(b)(5)(A), 3434(b)(5)(B), 3434(b)(5)(C) and 3434(b)(5)(D) were added.

The existing text under subsection 3434(b)(6) was renumbered as subsection 3434(b)(6)(A) and modified and a new subsection 3434(b)(6)(B) was added.

A new subsection 3434(b)(7) was added.

The existing text under subsection 3434(b)(7) was renumbered as subsection 3434(b)(8) and the new subsection 3434(b)(A) was modified. The existing quarantine area text under subsection 3434(b)(7)(B) was deleted and this area was incorporated into subsection 3434(c)(2). Existing subsection 3434(b)(7)(C) was renumbered as subsection 3434(b)(8)(B). A new subsection 3434(b)(8)(C) was added.

The existing text under subsection 3434(b)(8) was deleted and this quarantine area was incorporated into subsection 3434(c)(2).

The existing text under subsection 3434(b)(10) was modified.

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

On page 16 of the text an existing typographical error leaving out Peaceful Glen Road was corrected.

On page 20 of the text an existing typographical error in the spelling of “its” was corrected.

On page 35 of the text an existing typographical error in the spelling of “latitude” was corrected.

This amendment to Section 3434 is necessary to ensure the State's regulation continues to be substantially the same as the federal order issued April 6, 2010 (Federal Domestic Quarantine Order, *Epiphyas postvittana,* (Light Brown Apple Moth), dated April 6, 2010).

This proposal will add approximately 13 square miles to the existing quarantine area in Long Beach and establish a new quarantine of approximately 13 square miles in the Whittier area , Los Angeles County; establish a new quarantine area of approximately 15 square miles in the Foothill Farms area, add approximately 225 square miles to existing Sacramento area of Sacramento County; establish a new quarantine area of approximately 22 square miles in the Galt area of Sacramento and San Joaquin counties; merge the approximately 35 square miles in the Tracy area of San Joaquin and Alameda counties with the regulated area; establish a new quarantine areas of approximately 13 square miles in the Acampo area, 20 square miles in the Clements area, 54 square miles in the King Island area and 25 square miles in the Lockeford area of San Joaquin County; establish a new quarantine of approximately 10 square miles in the Cayucos area and expand the existing quarantine area by approximately three square miles in the Los Osos area of San Luis Obispo County; establish a new quarantines in the Carpinteria area, approximately 11 square miles and the Goleta area, approximately 19 square miles, of Santa Barbara County; expand by approximately eight square miles the Allendale area and establish a new quarantine of approximately 13 square miles in the Vacaville area of Solano County; expand by approximately 431 square miles current contiguous regulated area at various locations; and, remove approximately 10 square miles of the South Park area of San Diego County; remove approximately 37 square miles of the Manteca area of San Joaquin County; and, remove approximately 55 square miles of the Davis area of Yolo and Solano counties.

The regulated area will expand by a total of approximately 431 square miles. The quarantine area will expand by a total of approximately 464 square miles. The effect of this proposed change to the regulation will be to remove and add authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these areas.

This will result in a total of approximately 6,049 square miles under regulation within the State.

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

Background

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 has continued to make subsequent emergency amendments to this regulation as needed.

The Department also proposed the emergency adoption of Section 3434, Light Brown Apple Moth Interior Quarantine (effective April 20, 2007). Numerous subsequent emergency and normal rulemaking amendments to Section 3434 were as needed.

On May 2, 2007, the United States Department of Agriculture (USDA) issued the first federal order regulating the interstate movement of LBAM host material from the

infested areas of California and all of Hawaii. Numerous federal orders have subsequently been issued.

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.

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.

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

The Department of Food and Agriculture has determined that the amendment of Section 3434(b) does 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.

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 larvacide. 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 larvacide, 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 Barbara, Santa Clara, Santa Cruz, Solano, Sonoma and Yolo. The emergency adoption and subsequent amendments to Section 3434 are necessary to ensure the State's regulation continues 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.

There are approximately 3,718 production nurseries and 7,099 cut flower producers located in California. Of these, the majority are located outside the regulated and quarantine areas. Many of the businesses located outside the current regulated area are interstate shippers. Therefore, this regulatory action is 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, the majority are located outside the regulated and quarantine areas. 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 the majority of the retail nurseries located within California from ever having to incur losses due to LBAM.

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: Only portions of the State are regulated by this action and without this regulation the USDA would regulate the entire State.

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:

Pest and Damage Record #s 1310108), 1310109, 190P06006270, 190P06006271, 190P06006276, 190P06006277, 190P06006279, 190P06006287, 190P06006288, 190P06006289, 190P06006291,

190P06006296, 190P06006296, 190P06006301, 190P06006302, 190P06006303, 190P06006305, 190P06006283, 1496293, 1578990, 1578995, 1496968, 1578950, 1496318, 1496319, 1578980, 1578981, 1496320, 1609018, 1496291, 1496292, 1496294, 1496295, 1496296, 1628916, 1578986, 1496299, 1578988, 1496613, 1496669, 1578993, 1496842, 1496843, 1560315, 1560320, 1560322, 1432671, 1578997, 1560364, 1560373, 1578050, 1578052, 1578053, 390P06038503, 1560123, 1560304, 1560305, 1560390, 1644436, 1432430, 1432431, 1432432, 1432433, 1432939, 1432940, 1432941, 15660277, 1560278 and 1560279, 1560377, 1560378, 1560384, 1560370, 1644443, 1644440, 1644444, 1644446, 1644447, 1644449, 1644478, 1644481, 1560351, 1432947, 1426794, 1644482, 1270058, 1335873, 1756354 1576355, 5061757, 5061754, 5061782, 5061780, 5065605, 5065678, 5065677, 1270066, 1335875, 5061755, 5061749, 5061750, 5061783, 5061751, 5065602, 5061752, 5061787, 5065646, BU0P06007462, 5065920, 5065921, 5065922, 5065923, 5065924, 5065925, 5065940, 5065942, BU0P06007465, 1451127, 1451128, 5065943, 5065945, 5065946, 5065958, 1413711, 1465458, 1465459, 1413711, 1474111, 5041306, 5041435, 1496632, 1496635, 1496636, 1496641, 1496643, 1496644, 1496646, 1496876, 1496877, 1496880, 1496899, 1496944, 1496945, 1496991, 1496967, 1644949, 1560118, 1432670, 1560312, 1644485, 1474081, 1474087, 1474088, 1474107, 1474136, 1474137, 1474138, 1474139, 1474141, 1474142, 1474145, 1474122, 1655806, 1626065, 1626066, 1626067, 1474078, 1474093, 1474094, 1474110, 31626063, 1655812, 1474125, 1474116, 1474117, 1465545, 1578979, 1474155, 1474158, 1474159, 1474160, 1474164, 1474168, 1474172, 1465471, 1474174 and 1465474; California Department of Food and Agriculture.

Memo dated December 6, 2011, from Duane Schnabel to Robert Leavitt.

Memo dated October 13, 2011, from Duane Schnabel to Robert Leavitt.

Memo dated October 11, 2011, from Duane Schnabel to Robert Leavitt.

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.

LBAM Interior Quarantine Estimated Cost Basis, dated July 27, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services, Permits and Regulations.

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

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

Letter dated December 23, 2011, from Henry Gonzales to Karen Ross.

Letter dated August 4, 2010, from Robert G. Atkins to A.G. Kawamura.

Letter dated June 16, 2010 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. Meyer 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.