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

Emergency Adoption Effective April 20, 2007

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. The Department continued to deploy detection traps in additional counties. On March 22, 2007 multiple male LBAMs were detected in Golden Gate Park, San Francisco County. On March 27, 2007, multiple adult male LBAMs were detected in Marin County. On April 2, 2007, adult male LBAMS were trapped in the cities of Los Altos and Palo Alto, located in Santa Clara County.

The adoption of 3434(a) established the light brown apple moth (*Epiphyas postvittana*) as the target pest of concern.

The adoption of Section 3434(b) established portions of Alameda, Contra Costa, Marin, San Francisco and Santa Clara counties as the areas under quarantine for LBAM.

The adoption of Section 3434(c) established nursery stock, green waste, fresh garlands, wreaths, cut flowers, greens and certain harvested commodities derived from specified plants produced within the regulated area; and, possible carriers as articles and commodities regulated; and, the exemptions.

The adoption of Section 3434(d) established the restrictions on movement, both within and from the regulated area, on those articles and commodities covered.

The LBAM infestation on the East Bay Area began at the Oakland Airport and extended in a northern direction past Richmond. The quarantine land mass area for Alameda and Contra Costa counties was approximately 99 square miles. The quarantine land mass area in Marin County was approximately 11 square miles surrounding a portion of the San Rafael area; approximately nine square miles surrounding a portion of the Mill Valley area; approximately eight square miles surrounding a portion of the Novato area; and, approximately two square miles surrounding the Sausalito area; for a total of 30 square miles. The quarantine land mass area in San Francisco County was approximately 35 square miles. The quarantine area in Santa Clara County was approximately 17.5 square miles surrounding portions of Los Altos and Palo Alto. The total quarantine land mass area to be under quarantine was approximately 182 square miles.

The effect of this regulation was to provide authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in portions of Alameda, Contra Costa, Marin, San Francisco and Santa Clara counties.

<u>Emergency Amendment Effective June 6, 2007</u>

The Department continued to deploy and service LBAM detection traps. As a result, in Monterey County there were approximately 100 male LBAM trapped; in San Mateo County there were four male LBAM trapped; and in Santa Cruz County there were over 1,600 male

LBAM trapped. Additionally, male LBAM were trapped outside the current area regulated in Contra Costa, Marin and Santa Clara counties.

The amendment of Section 3434(b) established additional quarantine areas in the counties of Alameda (Dublin and Fremont areas) Contra Costa (Danville and Oakley areas), Marin (Tiburon area), Monterey (Seaside, Pajaro and Prunedale areas), San Mateo (Belmont, Colma, Half Moon Bay and Redwood City areas), Santa Clara (Cupertino area) and Santa Cruz (the coastal area from Santa Cruz down to the Monterey County boundary). Additionally, as a result of expanding existing areas or establishing new regulated areas, some of the existing regulated areas were merged into contiguous areas.

The existing text pertaining to the contiguous regulated areas of Alameda and Contra Costa counties under subsection 3434(b)(1) was deleted and moved and modified to a new subsection 3434(b)(2)(B). The new text of subsection 3434(b)(1) established approximately 10 square miles of the Fremont area as a separate area of Alameda County to be regulated.

The existing text pertaining to the regulated areas of Marin County was deleted. The new text of subsection 3434(b)(2)(A) added approximately 20.5 square miles of the Dublin area to the regulation. The new text of subsection 3434(b)(2)(B) established the modified text for the previous current regulated area of Alameda and Contra Costa counties. As a result of trapping male LBAM adults in the hills of Oakland, Moraga and Pinole areas, the existing contiguous quarantine area in Alameda and Contra Costa counties was expanded (by approximately 41 square miles) in a northern and eastern direction. The regulated land mass area for Alameda and Contra Costa counties (approximately 99 square miles) expanded by approximately 61.5 square miles for a total of 161.5 square miles.

The existing text under subsection 3434(b)(3) pertaining to San Francisco County was deleted. The new text of subsection 3434(b)(3) established 28.5 square miles of the Danville and Oakley areas as separate areas of Contra Costa County to be regulated. Subsection 3434(b)(3)(A) added approximately 13.5 square miles of the Danville area; and, subsection 3434(b)(3)(B) added approximately 15 square miles of the Oakley area to the regulated area of Contra Costa County.

The existing text under subsection 3434(b)(4) pertaining to Santa Clara County was deleted. The existing text deleted under subsection 3434(b)(2)(B), pertaining to the Novato area of Marin County, became subsection 3434(b)(4)(A). The existing text deleted under subsection 3434(b)(2)(C), pertaining to the San Rafael area of Marin County, became subsection 3434(b)(4)(B).

A new subsection 3434(b)(5) was established and pertained to portions of Marin and San Francisco counties. As a result of a new LBAM infestation in the Tiburon area, the Department merged this area with the existing regulated areas of Mill Valley [subsection 3434(b)(2)(A)], Sausalito [subsection 3434(b)(2)(D)] and San Francisco [subsection 3434(b)(3)]. This established a new contiguous area and expanded the total land mass regulated in this area by approximately seven square miles for a total of 51 square miles.

The new subsection 3434(b)(6) established approximately 51 square miles as a separate area in the Seaside area of Monterey County to be regulated.

The new subsection 3434(b)(7) established approximately 304 square miles of Monterey and Santa Cruz counties as a new contiguous regulated area. Additionally, due to the detection of LBAM in eastern Monterey County, the buffer area included a small portion of San Benito County.

The new subsection 3434(b)(8) established approximately 46 square miles of portions of San Mateo County as regulated areas. Subsection 3434(b)(8)(A) established approximately 23 square miles in the Belmont area. Subsection 3434(b)(8)(B) established approximately 11 square miles in the Colma area. Subsection 3434(b)(8)(C) established approximately 12 square miles in the Half Moon Bay area.

The new subsection 3434(b)(9) established approximately 15.5 square miles of the Cupertino area as a separate area of Santa Clara County to the regulation.

The deleted text of the existing subsection 3434(b)(4), which regulated portions of Los Altos and Palo Alto (approximately 17.5 square miles) in Santa Clara County was moved and modified and became a new subsection 3434(b)(10). Under this new subsection, a southern portion of

San Mateo County was added to the Los Altos area. The new subsection 3434(b)(10) added approximately 21 square miles of San Mateo and Santa Clara counties to the regulation for a total of 38.5 square miles.

The total land mass area under quarantine was approximately 725 square miles.

The effect of this regulation was to provide authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional areas.

Emergency Amendment Effective June 7, 2007

On May 9, 2007, an adult male LBAM was detected in Napa County (Napa area). The Department identified this pest on May 11, 2007. Under an agreement with the United States Department of Agriculture (USDA) pertaining to new federal action pest detections in a new county, the Department forwarded this specimen to the USDA's Systematic Entomology Laboratory (SEL) for its confirmation. On May 15, 2007, the SEL confirmed LBAM as being found in Napa County.

The amendment of Section 3434(b)(8) established an additional quarantine area in the Napa area of Napa County. The new subsection 3434(b)(8) established approximately 10 square miles as the Napa area of Napa County to be regulated. The total proposed land mass area to be under quarantine was approximately 735 square miles.

The existing text under subsections 3434(b)(8), 3434(b)(9) and 3434(b)(10) was renumbered as subsections 3434(b)(9), 3434(b)(10) and 3434(b)(11), respectively.

The effect of this regulation was be to provide authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these areas.

Emergency Amendment Effective June 21, 2007

On June 5, 2007, an adult male LBAM was identified and it was collected from outside the current regulated area of Fremont, Alameda County. On May 25, 2007, an adult male LBAM

was identified and it was collected from the Bonny Doon area which is outside the current regulated area of Santa Cruz County. Two additional adult moths were identified from the Bonny Doon area on June 5, 2007. On June 8, 2007, an adult LBAM was identified and had been collected outside the regulated area in Monterey County. The detection of these additional adult LBAMs is indicative of incipient infestations of LBAM in these areas.

On June 12, 2007, the Department reviewed its list of LBAM interceptions from nursery stock located within the regulated area. LBAM larvae were detected on 22 new genera in California. The Department anticipated there would be new nursery stock hosts and as a result, regulated all nursery stock originating from an area under quarantine for LBAM. However, one of the new LBAM hosts is strawberry guava. Under Section 3434, the Department did not regulate strawberry guava as a harvested commodity. The Department believed it was prudent to regulate all harvested fruits and vegetables for this pest. The known host list for this species is very large, and its generalist feeding habits suggest that the list will continue to expand as it encounters new suitable hosts in California.

In addition, the females appear to be relatively indiscriminate in regards to where eggs are laid. In one paper, there was no difference in oviposition between known host and non-host plants (Foster and Howard, 1999, Ent. Exper. Appl. 92: 53-62). However, hatched larvae did discriminate between such plants. The implication is that females look for a suitably textured surface for oviposition, and rely on the larvae to relocate to host plants. One advantage to this behavior is that it encourages larval dispersal from the egg mass, which would in turn decrease intersibling competition. Additionally, a federal order issued on May 2, 2007, regulated the interstate movement of all fruits and vegetables. Section 3434 was amended to include all harvested fruits and vegetables which harmonized the regulatory requirements for interstate and intrastate movement.

These amendments of subsection 3434(b) established additional quarantine areas in the Fremont area of Alameda County; the Bonny Doon and Scott's Valley areas of Santa Cruz County; and, the Mt. Madonna area of Monterey County. The emergency amendments to subsection 3434(b) established approximately 11 additional square miles in the Fremont area of Alameda County to be regulated for a total of 21 square miles; and, added approximately 22

square miles to the contiguous regulated area in Monterey and Santa Cruz counties. The total land mass area under regulation was approximately 784 square miles.

The existing text for Alameda and Contra Costa counties under subsection 3434(b)(1) was deleted and replaced by the text for Fremont area of Alameda County.

The existing text for Marin County under subsection 3434(b)(2) was deleted and replaced by new text for Alameda and Contra Costa counties; subsection 3434(b)(2)(A) added the Dublin area and subsection 3434(b)(2)(B) added and expanded the rest of the contiguous regulated area of Alameda and Contra Costa counties.

The existing text for San Francisco County under subsection 3434(b)(3) was deleted and replaced by the text regulating two areas of Contra Costa County; subsection 3434(b)(3)(A) describes the Danville area and subsection 3434(b)(3)(B) describes the Oakley area.

The existing text for Santa Clara County under subsection 3434(b)(4) was deleted and replaced by text regulating two areas of Marin County; subsection 3434(b)(4)(A) describes the Novato area and subsection 3434(b)(4)(B) describes the San Rafael area.

A new subsection 3434(b)(5) was added describing the contiguous regulated area in Marin and San Francisco counties.

A new subsection 3434(b)(6) was added describing the regulated area of Seaside, located in Monterey County.

A new subsection 3434(b)(7) was added describing the contiguous regulated area in the counties of Monterey and Santa Cruz.

A new subsection 3434(b)(8) was added describing the three regulated areas in the County of San Mateo; subsection 3434(b)(8)(A) describes the Belmont area; subsection 3434(b)(8)(B) describes the Colma area; and, subsection 3434(b)(8)(C) describes the Half Moon Bay area.

A new subsection 3434(b)(9) was added describing the regulated area of Cupertino, located in Santa Clara County.

A new subsection 3434(b)(10) was added describing the contiguous regulated area in the counties of San Mateo and Santa Clara.

The amendment of subsection 3434(c) established all harvested fruits and vegetables as hosts and possible carriers of LBAM and deleted all references to specific genera.

The effect of this regulation will be to provide authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these areas and regulate all fruits and vegetables.

Emergency Amendment Effective July 18, 2007

On June 28, 2007, an adult male LBAM was detected in the Sherman Oaks area of Los Angeles County. As this represents a new county, per our agreed upon protocol, the specimen was sent to the USDA for confirmation. On July 6, 2007, the USDA confirmed this detection as LBAM.

On June 27, 2007, an adult LBAM was detected in the Vallejo area of Solano County. As this represents a new county, per our agreed upon protocol, the specimen was sent to the USDA for confirmation. On July 9, 2007, the USDA confirmed this detection as LBAM.

On July 6, 2007, an adult male LBAM was detected outside the regulated area in San Francisco, San Francisco County. On July 2, 2007, two adult LBAM were detected outside the current regulated area in the Salinas area, Monterey County. On July 2, 2007, an adult LBAM was also detected to the west of the current regulated area in Monterey, Monterey County. On June 27, 2007, an adult male LBAM was detected in the San Rafael area of Marin County outside the current regulated area. On June 25, 2007, an adult male LBAM was detected in the Greenfield area of Monterey County. On June 24, 2007, an adult male LBAM was detected in the northeast Richmond area of Contra Costa County. On May 8 and June 16, 2007, adult male LBAM were trapped close to the southeast edge of the Danville regulated area in Contra Costa County. On June 19, 2007, an adult LBAM was detected at a residence in the Palo Alto area of

Santa Clara County. On June 14, 15 and 17, 2007, adult male LBAM were detected at residences located in the northwest area of Santa Cruz County and outside the current regulated area. On June 14, 2007, an adult male LBAM was detected in the Watsonville area of Santa Cruz County. On June 14, 2007, an adult male LBAM was detected in south San Jose, Santa Clara County. On June 12, 2007, an adult LBAM was detected in the Santa Clara area Santa Clara County. On June 8 and 12, 2007, adult LBAM were detected in the Hayward area of Alameda County. On June 11, 2007, an adult LBAM was detected outside the current regulated area to the east of area Soquel of Santa Cruz County. On May 30, 2007, an adult male LBAM was detected in the Millbrae area of San Mateo County.

The proposed emergency amendments will add two new counties to the regulation, Los Angeles (Sherman Oaks area) and Solano (Vallejo area). The proposed amendments of subsection 3434(b) will establish additional quarantine areas in the Hayward area (approximately 19 square miles) of Alameda County; the Greenfield area (approximately 21 square miles) of Monterey County; the Millbrae area (approximately eight square miles) of San Mateo County; and the San Jose area (approximately 12 square miles) of Santa Clara County. The proposed amendments will also expand or merge other current regulated areas in the counties of Contra Costa, Marin, Monterey, San Francisco, San Mateo, Santa Clara and Santa Cruz.

The proposed emergency amendments to subsection 3434(b) will establish approximately 11 additional square miles in the Sherman Oaks area of Los Angeles County and approximately nine square miles in the Vallejo area of Solano County to the regulation. The proposed amendment will expand the regulated area of Danville (Contra Costa County) by approximately three and one-half square miles for a total of 17 square miles. The proposed amendment will also expand the contiguous regulated area of Monterey and Santa Cruz counties by adding another approximate 90 square miles, merging the Seaside area of Monterey County and expanding to the northwest in the Davenport and east of Soquel areas for a total of 467 square miles. The proposed amendment will expand the regulated area of Cupertino (Santa Clara County) by approximately nine square miles for a total of 24.5 square miles. The proposed amendment will also expand the contiguous regulated area of Marin (merging the San Rafael area), San Francisco and San Mateo (merging the Colma area) counties by approximately 22.5 square miles for a total of 95 square miles. The proposed amendment will also expand the contiguous regulated area of San Mateo and Santa Clara

counties by adding approximately four square miles in the Palo Alto area for a total of 60 square miles. Finally, the contiguous regulated area of Alameda and Contra Costa counties will be expanded by five square miles in the Richmond area for a total of 145 square miles. The total proposed regulated land mass area will be approximately 989 square miles.

The existing text for Alameda County counties under subsection 3434(b)(1) was modified to reflect two regulated areas; subsection 3434(b)(1)(A) describes the Fremont area and subsection 3434(b)(1)(B) describes the Hayward area.

The existing text under subsection 3434(b)(2)(B) was modified to reflect an expanded contiguous regulated area of Alameda and Contra Costa counties and to correct a typographical error.

The existing text under subsection 3434(b)(3)(A) describing the Danville area was modified to reflect an expanded regulated area.

The existing text for subsection 3434(b)(4) was renumbered as subsection 3434(b)(5) and subsection 3434(b)(4)(B) that described the San Rafael area was deleted.

A new subsection 3434(b)(4) was added describing the regulated area of Sherman Oaks, located in Los Angeles County.

The existing text under subsection 3434(b)(5) was renumbered as subsection 3434(b)(6) and modified to describe the contiguous regulated area in the counties of Marin, San Francisco and San Mateo.

The existing text describing the regulated area of Seaside was deleted and subsection 3434(b)(6) was renumbered as subsection 3434(b)(7) and modified to describe the regulated area of Greenfield, located in Monterey County.

The existing text under subsection 3434(b)(7) was renumbered as subsection 3434(b)(8) and modified to describe the contiguous regulated area in the counties of Monterey and Santa Cruz.

The existing text for Napa County under subsection 3434(b)(8) was renumbered as subsection 3434(b)(9).

The existing text for San Mateo County under subsection 3434(b)(9)(A) was renumbered as subsection 3434(b)(10) and subsection 3434(b)(9)(C) describing the Colma area was deleted; the new subsection 3434(b)(10)(B) now describes the regulated area in Half Moon Bay and the new subsection 3434(b)(10)(C) now describes the regulated area in Millbrae.

A existing subsection 3434(b)(10) describing the regulated area in Santa Clara County was renumbered as subsection 3434(b)(11)(A) and the description of the regulated area of Cupertino was modified. A new subsection 3434(b)(11)(B) was added describing the regulated area in San Jose.

A existing subsection 3434(b)(11) describing the regulated area in San Mateo and Santa Clara counties was renumbered as subsection 3434(b)(12) and modified to describe an expanded contiguous regulated area.

A new subsection 3434(b)(13) was established to describe the regulated area in Vallejo, Located in Solano County.

The adult LBAMs will continue to emerge and are not known to be a long distance flyer. These types of moths generally only fly up to approximately one half mile and the current traps will attract a male moth within 100 meters. The real threat of long distance spread is through the human assisted movement of infested plants and plant parts, including green waste, and other possible carriers such as contaminated equipment or appliances.

Additionally, on May 2, 2007, the United States Department of Agriculture (USDA) issued a Federal Domestic Quarantine Order for LBAM which restricts the interstate movement of host commodities produced in the California counties of Alameda, Contra Costa, Marin, Monterey, San Francisco, San Mateo, Santa Clara and Santa Cruz. This order now applies to all affected California counties.

An additional emergency quarantine response is necessary now to help ensure the LBAM does not continue to spread to other uninfested areas of the State. These emergency amendments to Section 3434 are necessary to ensure the State's regulation continues to be substantially the same as the recent 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.

Therefore, it was necessary to adopt and amend this regulation as emergency actions.

The LBAM has the capability of causing significant irreparable harm to California's agricultural industry and some possible adverse environmental impacts. While the Department's compliance with the California Administrative Procedure Act and the California Environmental Quality Act (CEQA) are separate actions, they can be interrelated. Although adoption of specific regulatory authority can be the beginning of a project and therefore covered by CEQA, this regulation, for the reasons already set forth, constitutes a specific act necessary to prevent or mitigate an emergency as authorized by Public Resources Code section 21080, subdivision (b)(4) and Title 14, California Code of Regulations Section 15269, subdivision (c). The regulation is also an action required for the preservation of the environment and natural resources as authorized by Title 14, California Code of Regulations, sections 15307 and 15308.

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 plants species and habitats. There is an imminent threat for adverse consequences and ultimate extinction to some of these sensitive species if LBAM becomes permanently established in California.

Currently, this species has a relatively restricted geographic distribution, being found only in portions of Europe and Oceania. 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 the 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 apple, 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.

Where ever LBAM occurs in association with vineyards, it is considered to be a very important agricultural pest. Unless properly managed, LBAM causes substantial risk 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.

There is no comprehensive estimate of the total economic losses that could be caused by the LBAM to the environment and the agricultural industry in California. The impact on production costs for LBAM hosts could top $100 million. It was estimated for Australia that LBAM causes AU$21.1 million annually in lost production and control costs, or about 1.3 percent of gross fruit value, for apples, pears, oranges and grapes. Applying this percentage to the 2005 gross value of these same crops in California of $5.4 billion (USDA 2006), the estimated annual production costs would be $70.2 million. 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 and strawberries. If the same level of costs were incurred by these as for the previous four crops, the additional costs would be $63.1 million, based on their 2005 gross value of $4.8 billion. Therefore, the total lost production and control costs in California could be $133 million for all of the crops mentioned above.

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 LBAMs present range, its potential damage to California's environment and agricultural industry could be devastating; especially without adequate control measures.

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 take these rulemaking actions.

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 368 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. Whatever IPM program the producer uses with success to keep the nursery stock free from LBAM is acceptable, it is a performance standard.

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 states 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, 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 approximately 298 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.

However, 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.

Within the regulated area, the Department has identified approximately 10 community gardens and 144 host crop producers. 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 end product, 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.

Within the regulated area the Department has identified approximately 13 cold storage facilities. 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 (approximately 57 were identified by the Department as being within the regulated area) 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.

Additionally, on May 2, 2007, the United States Department of Agriculture (USDA) issued a Federal Domestic Quarantine Order for LBAM which restricts the interstate movement of host commodities produced in the California counties of Alameda, Contra Costa, Marin, Monterey, San Francisco, San Mateo, Santa Clara and Santa Cruz. This order now applies to all infested California counties. 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 approximately 1,000 square miles.

There are approximately 3,718 production nurseries and 7,099 cut flower producers located in California. Of these, approximately three percent (368) are located with 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:

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Email dated July 20, 2007, from Nick Condos to Courtney Albrecht and Stephen Brown.

Email dated July 10, 2007, from Dorthea Zadig to Stephen Brown.

Email dated June 12, 2007, from Kevin Hoffman to Stephen Brown.

Email dated July 6, 2007, from Marc Epstein to Helene R. Wright, et.al.

Email dated June 11, 2007, from Jennifer Debernardi to Stephen Brown and its attachment.

Email dated July 3, 2007, from Brian Cahill to Stephen Brown.

Email dated June 25, 2007, from Nick Condos to Ronald Pummer.

Email dated June 13, 2007, from Mert Price to Nick Condos.

Email dated May 29, 2007, from Helene R. Wright to Steve Brown.

Email dated May 15, 2007, from Marc Epstein, to LBAM, “SEL Verification Light Brown Apple Moth – New Record for Napa Co., CA.”

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

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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.

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"Light Brown Apple Moth (LBAM) Approved Treatments for Nurseries and Host Crops," modified July 19, 2007.

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"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), [Leptidoptera: Tortricidae], September 21, 2003, Department of Entomology, University of Minnesota.

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“Pest and Damage Record #1416444,” dated March 26, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

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“Pest and Damage Record #1289026,” dated March 26, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1417265,” dated March 22, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1454835,” dated March 22, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1454829,” dated March 22, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1417082,” dated March 21, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1284978,” dated March 15, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1284770,” dated March 14, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1284912,” dated March 12, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1454814,” dated March 8, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1454811,” dated March 7, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1268600,” dated February 27, 2007, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.