DEPARTMENT OF FOOD AND AGRICULTURE

PROPOSED CHANGES IN THE REGULATIONS

Title 3, California Code of Regulations

Section 3434, Subsection (b)

Light Brown Apple Moth Interior Quarantine

INITIAL STATEMENT OF REASONS/

POLICY STATEMENT OVERVIEW

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

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

Specific Purpose and Factual Basis

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

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

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

Amendment Effective March 30, 2009

On February 26 (California Pest and Damage Record (PDR) #5001502 and March 2 (PDR #1482301), 2009, adult male LBAM were trapped in the Fremont area of Alameda County. On December 12, 2008 (PDR# 1489955) and February 26, 2009 (PDR# 5001482), adult male LBAM were trapped in the Livermore area of Alameda County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Alameda County.

On February 17 (PDR #1519944) and March 2 (PDR #1519964), 2009, adult male LBAM were trapped in the Benicia area of Solano County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Solano County.

On November 17, 2008 (PDR #1537836) and February 22, 2009 (PDR #1537843), adult male LBAM were trapped in the Sonoma area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Sonoma County.

On February 24 (PDR #1427185) and March 3 (PDR #1543577), 2009, adult male LBAM were trapped in the Bolinas area of Marin County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Marin County.

This amendment expanded the regulated area in Alameda and Marin counties by approximately 61 square miles and in Solano and Sonoma counties by approximately 11 square miles. This resulted in a total of approximately 2,486 square miles under regulation within the State. The effect of this proposed change to the regulation was to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional areas.

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

The existing text under subsection 3434(b)(5) was modified.

Effective April 27, 2009

On November 24, 2008 (California Pest and Damage Record (PDR) #1542478) and March 30, 2009 (PDR# 5008417), adult male LBAM were trapped in the Fremont area of Alameda County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in the Fremont area of Alameda County.

On December 10, 2008 (PDR #1542714) and March 31, 2009 (PDR# 1484374), adult male LBAM were trapped in the American Canyon area of Napa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in the Napa area of Napa County.

On January 2, 2009 (PDR #1484367), an adult male LBAM was trapped in the Napa area of Napa County. On March 26, 2009 (PDR# 1519719) an adult male LBAM was trapped in the Napa area of Napa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for establishing a new quarantine area in the Napa area of Napa County.

On March 17, 2009 (PDR #1519657), an adult male LBAM was trapped in the Sonoma area of Sonoma County. On March 25, 2009 (PDR #1519686), an adult male LBAM was trapped in the Napa area of Napa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Napa and Sonoma counties.

On November 5, 2008 (PDR #1508151), March 19, 2009 (PDR #1473469) and April 3 (PDR #1473470) and April 7, 2009 (PDR #1519756), adult male LBAM were trapped in

the Sonoma area of Sonoma County. This met the regulatory protocol for expanding the quarantine area in the Sonoma area of Sonoma County.

On November 18, 2008 (PDR #1481796), an adult male LBAM was trapped in the Rohnert Park area of Sonoma County. On April 9, 2009 (PDR #1519779), an adult male LBAM was trapped in the Cotai area of Sonoma County. This met the regulatory protocol for expanding the quarantine area in these areas of Sonoma County.

On March 3, 2009 (PDR #1537844) and April 3, 2009 (PDR #1519755), adult male LBAM were trapped in the Healdsburg area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for establishing a new quarantine area in the Healdsburg area of Sonoma County.

On March 24 (PDR #5008159) and 31 (PDR #5008418), 2009, adult male LBAM were trapped in the Hollister area of San Benito County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for establishing a new quarantine area in the Hollister area of San Benito County.

This amendment established a new regulated area in the Napa area of Napa County of approximately 19 square miles; a new regulated area in the Hollister area of San Benito County of approximately 16 square miles; a new regulated area in the Healdsburg area of Sonoma County of approximately 16 square miles; and a new regulated area in the Cotati and Rohnert Park areas of Sonoma County of approximately 13 square miles. This amendment also expanded the regulated area of Napa and Sonoma counties by approximately 33 square miles and the regulated area of Alameda County by approximately 14 square miles. This resulted in a total of approximately 2,597 square miles under regulation within the State. The effect of this proposed change to the regulation was to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional areas.

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

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

A new subsection 3434(b)(4) was established.

Existing subsections 3434(b)(3), 3434(b)(4), 3434(b)(5) and 3434(b)(6) were respectively renumbered 3434(b)(5), 3434(b)(6), 3434(b)(7) and 3434(b)(8).

The text under the renumbered subsection 3434(b)(7) was modified.

The text under the renumbered subsection 3434(b)(8) was modified and became subsection 3434(b)(8)(B) and a new subsection 3434(b)(8)(A) was added.

Amendment Effective May 20, 2009

On October 31, 2008 (California Pest and Damage Record (PDR) #1508113), March 19 (PDR #1503618) and 31 (PDR #1503658), 2009; and April 1 (PDR# 1503673), adult male LBAM were trapped in the Concord area of Contra Costa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in the Concord area of Contra Costa County.

On December 10, 2008 (PDR #1537841); April 16 (PDR #1537813) and May 5 (PDR# 1421928), 2009, adult male LBAM were trapped in the Petaluma area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for establishing a quarantine area in the Petaluma area of Sonoma County.

On April 2 (PDR #5008586) and 13 (PDR# 5009853), 2009, adult male LBAM were trapped in the Hayward area of Alameda County. On April 6, 2009 (PDR# 5008645), an

adult male LBAM were trapped in the Fairview area of Alameda County. These LBAM were trapped within three miles of each other and within one life cycle. On April 13 (PDR #1416180) and 20 (PDR# 1430268), 2009, adult male LBAM were trapped in the Livermore area of Alameda County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Alameda County.

On April 16 (PDR #1421869) and 23 (PDR #1493844), 2009, adult male LBAM were trapped in the Napa area of Napa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in the Napa area of Napa County.

On April 9, 2009 (PDR #5008944), an adult male LBAM was trapped in the Los Gatos area of Santa Clara County. On April 14, 2009 (PDR #5009856), an adult male LBAM was trapped in the Monte Sereno area of Santa Clara County. These LBAM were trapped within three miles of each other and within one life cycle. On April 15 (PDR #5009857) and 29 (PDR #5010506); and, May, 4, 2009 (PDR #5010686) adult male LBAM were trapped in the Morgan Hill area of Santa Clara County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Santa Clara County.

This amendment established a new regulated area in the Petaluma area of Sonoma County of approximately 40 square miles. This amendment expanded the regulated area of Napa County by approximately 20 square miles and expanded the contiguous regulated area in the counties of Alameda, Contra Costa and Santa Clara by approximately 85 square miles. This resulted in a total of approximately 2,742 square miles under regulation within the State. The effect of this proposed change to the regulation will be to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional areas.

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

The existing text under subsection 3434(b)(6) was modified.

New text was placed under subsection 3434(b)(7)(B) and the existing text under subsection 3434(b)(7)(B) was renumbered as 3434(b)(7)(C).

Effective May 26, 2009

On March 30 (PDR #1520041) and May 14, 2009 (PDR #1480739), adult male LBAM were trapped in the Davis area of Yolo County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for establishing a quarantine area in the Davis area of Yolo County.

This amendment established a new regulated area in the Davis area of Yolo County of approximately 38 square miles. This resulted in a total of approximately 2,780 square miles under regulation within the State. The effect of this proposed change to the regulation will be to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional areas.

A new subsection 34334(b)(9) was established.

Effective June 15, 2009

On November 24, 2008 (Pest and Damage Record (PDR) #1489592), April 20 (PDR #5010068), May 4 (PDR #5010834) and 21 (PDR #5016667), 2009, adult LBAM were trapped in the Pescadero area of San Mateo County. On April 21, 2009 (PDR #5010209), an adult LBAM was trapped in the San Gregorio area of San Mateo County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of San Mateo County.

On December 1, 2008 (PDR #1537840), an adult LBAM was trapped in the Graton area of Sonoma County. On May 5 (PDR #1421931) and May 7 (PDR #s 1421989 and 1421986), 2009, adult male LBAM were trapped in the Rohnert Park area of Sonoma County. On May 11, 2009 (PDR #1537933), an adult male LBAM was trapped in the Sebstopol area of Sonoma County. On May 7, 2009 (PDR #s 1537909 and 1537910), adult male LBAM were trapped in the Sonoma area of Sonoma County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Sonoma County.

On March 19, 2008 (PDR #1282305) and May 14, 2009 (PDR #5011183), adult male LBAM were trapped in the Hollister area of San Benito County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of San Benito County.

On March 31, 2009 (PDR #1503658), an adult male LBAM was trapped in the Concord area of Contra Costa County. On March 27 (PDR #1454197) and April 27 (PDR #5010480), 2009, adult male LBAM were trapped in the Pittsburg area of Contra Costa County. On April 23 (PDR #5010317) and May 4 (PDR #1503400), 2009, adult male LBAM were trapped in the Pittsburg area of Contra Costa County. On April 28, 2009 (PDR #5010670), an adult LBAM was trapped in the Oakley area of Contra Costa County. On April 29, 2009 (PDR #1503420), an adult LBAM was trapped in the San Ramon area of Contra Costa County. On April 30, 2009 (PDR # 1503010), an adult LBAM was trapped in the Clayton area of Contra Costa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Contra Costa County.

On April 9 (PDR #1502680) and May 14 (PDR #1483243), 2009, adult male LBAM were trapped in the Dublin area of Alameda County. On May 6 (PDR #1502300) and 14 (PDR #1483242), 2009, adult male LBAM were trapped in the Pleasanton area of Alameda County. These LBAM were trapped within three miles of each other and within

one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Alameda County.

On April 14, 2009 (PDR #5009856), an adult male LBAM was trapped in the Monte Sereno area of Santa Clara County. On April 15 (PDR #5009867) and 27 (PDR #5010478), adult male LBAM were trapped in the Cupertino area of Santa Clara County. On April 27, 2009 (PDR #5010474), an adult male LBAM was trapped in the Saratoga area of Santa Clara County. On April 28 (PDR #5010454), 30 (PDR #5010825) and June 1 (PDR # 5016640), 2009, adult male LBAM were trapped in the Gilroy area of Santa Clara County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Santa Clara County.

On April 6, 2009 (PDR #5008712), an adult male LBAM was trapped in the Los Gatos area of Santa Cruz County. On April 28, 2009 (PDR #5010399), an adult male LBAM was trapped in the Felton area of Santa Cruz County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Santa Cruz County.

On April 24 (PDR #1421913) and May 7 (PDR #1421985), 2009, adult male LBAM were trapped in the Benicia area of Solano County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Solano County.

On May 12 (PDR #5011001) and 18 (PDR #5011301), 2009, adult male LBAM were trapped in the Salinas area of Monterey County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in this area of Monterey County.

On May 13, 2009 (PDR #1536180), an adult male LBAM was trapped in the Yountville area of Napa County. On May 14, 2009 (PDR #1542595), an adult male LBAM was

trapped in the Napa area of Napa County. These LBAM were trapped within three miles of each other and within one life cycle. This met the regulatory protocol for expanding the quarantine area in these areas of Napa County.

This amendment expanded the contiguous regulated area in the counties of Alameda, Contra Costa, Monterey, San Mateo, Santa Clara and Santa Cruz, Solano and Sonoma by approximately 233 square miles and the contiguous regulated area of Napa, Solano and Sonoma by approximately 62 square miles. It expanded the regulated Hollister area of San Benito County by 22 square miles and the regulated Sebastopol area of Sonoma County by approximately 65 square miles. It also established a new regulated area of approximately 34 square miles in the Gilroy area of Santa Clara County. This resulted in a total of approximately 3,194 square miles under regulation within the State. The effect of this proposed change to the regulation will be to establish authority for the State to perform quarantine activities against LBAM (*Epiphyas postvittana*) in these additional areas.

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

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

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

The existing text under subsection 3434(b)(5) was deleted.

The existing text under subsection 3434(b)(6) was renumbered as subsection 3434(b)(4).

The existing text under subsection 3434(b)(7) was renumbered as subsection 3434(b)(5) and modified.

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

The existing text under subsection 3434(b)(8) was renumbered as subsection 3434(b)(7) and subsection 3434(b)(7)(C) was modified.

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

The light brown apple moth (*Epiphyas postvittana*) was first detected in California on February 27, 2007 in Alameda County and on March 7, 2007, the light brown apple moth (LBAM) was first detected in Contra Costa County. Through the deployment of delimiting detection traps, numerous additional adult male moths were trapped in both counties. As a result, the Department adopted an emergency regulation, Section 3591.20, which became effective on March 21, 2007. The Department continued to deploy detection traps in additional counties. As a result of multiple detections of LBAM, the Department amended Section 3591.20 to add the counties of Marin and San Francisco (effective April 3, 2007); Santa Clara County (effective April 20, 2007); Monterey, San Mateo and Santa Cruz counties (effective April 23, 2007); and, Napa County (effective June 5, 2007). The Department also proposed the emergency adoption of Section 3434, Light Brown Apple Moth Interior Quarantine (effective April 20, 2007). Emergency amendments to Section 3434 were subsequently made adding portions of Alameda, Contra Costa, Marin, Monterey, San Benito, San Mateo and Santa Cruz counties (effective June 6, 2007) and Napa County (effective June 7, 2007).

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

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

On May 15, 2008, a new regulated area was established in the Martinez area of Contra Costa County; and, areas were expanded in the Vallejo area of Solano County, the Mountain View, Palo Alto and San Jose areas of Santa Clara County and the Belmont, Redwood City and San Carlos areas of San Mateo County. Subsequent emergency amendments were made effective May 23, June 11 and 16, July 11 and 28, August 13, 18 and 26, September 10 and 23, October 14 and 20, November 12 and December 12, 2008.

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 concurred 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 an imminent threat for adverse consequences and ultimate extinction 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 face 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 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.

In Australia, when insecticides are not applied, typically between five percent 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 significant, especially without adequate control measures.

Unless the State's LBAM regulation is substantially the same as the LBAM federal regulation and orders, the USDA cannot regulate less than the entire State. As an example, on January 11, 2008, the USDA issued a Federal Order that expanded its citrus greening (CG) quarantine to encompass the entire State of Florida. This action was a result of the USDA confirming detections of CG in two new Florida counties: Lake and Hernando. Following discussions with the State of Florida, the USDA determined that parallel quarantine actions proposed by the State of Florida were not adequate and, therefore, it was necessary to impose statewide restrictions on the movement of all live host plants and host plant parts from Florida.

Therefore, these emergency amendments to Section 3434 were also necessary to ensure the State's regulation continues to be substantially the same as the Federal Order issued on April 28, 2008, which includes the October 2007 regulatory protocol.

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

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

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

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

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

The Department has determined that the proposed actions will not have a significant adverse economic impact on housing costs or California business, including the ability of California businesses to compete with businesses in other states. The Department’s

determination that the action will not have a significant statewide adverse economic impact on business was based on the following:

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

If the IPM program fails, a production nursery (including cut flowers) with an active LBAM infestation must eliminate LBAM from the nursery or from a specific lot of nursery stock in order to be eligible for quarantine certification. There are at least 24 pesticides registered for use in California that are efficacious against LBAM and may target different life stages (egg, larvae, pupae and adult). The grower may choose from this existing list or may present another compound if it is registered for use in California and there is scientific evidence that it is efficacious against LBAM. It takes approximately 10 days for LBAM eggs to hatch and the larvae to be susceptible to a 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 Clara, Santa Cruz, Solano, Sonoma and Yolo. The emergency adoption and subsequent

emergency amendments to Section 3434 were necessary to ensure the State's regulation continued to be substantially the same as the federal order. If the State's regulation is not substantially the same as the federal order, the USDA cannot regulate less than the entire State. Under Section 3434, the total regulated area in California is now approximately 3,,698 square miles.

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

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

Assessment

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

Alternatives Considered

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

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

Information Relied Upon

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

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

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

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

"Light Brown Apple Moth (LBAM) Approved Treatments for Nurseries and Host Crops," revised August 8, 2008, California Department of Food and Agriculture.

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

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

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

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

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

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

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

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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.

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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.

“Pest and Damage Record #1508113,” dated October 31, 2008, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1508151,” dated November 5, 2008, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1537836,” dated November 17, 2008, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #1481796,” dated November 18, 2008, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

“Pest and Damage Record #s 1489592 and 1542478,” dated November 24, 2008, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

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“Pest and Damage Record #5008159” dated March 24, 2009, California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

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