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DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

[Docket No. APHIS-2009-0101]

Response to Petitions for the Reclassification of Light Brown Apple Moth as a Non-Quarantine Pest

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Notice.

SUMMARY: We are notifying the public of our decision to maintain our classification of the light brown apple moth (LBAM, *Epiphyas postvittana* [Walker]) as a quarantine pest. In making this decision, the Animal and Plant Health Inspection Service (APHIS) evaluated the possibility of and impact from reclassifying LBAM from an actionable, quarantine-significant pest to a non-actionable, non-quarantine pest. By maintaining a regulatory program for LBAM, APHIS is seeking to minimize the further spread of the moth in the United States and maintain foreign trade markets for our producers. This decision is based on our evaluation of data submitted by the two petitioners seeking the reclassification of LBAM, our analysis of other scientific data, and comments received from the public in response to our previous notice announcing the availability of our revised draft response to those petitions.

DATES: EFFECTIVE DATE: [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may read the documents referenced in this notice and the comments we received in our reading room. The reading room is located in room 1141 of the USDA South

Building, 14th Street and Independence Avenue, SW., Washington, DC. Normal reading room hours are 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. To be sure someone is there to help you, please call (202) 799-7039 before coming. Those documents are also available on the Internet on the Regulations.gov Web site at

<http://www.regulations.gov/#!docketDetail;D=APHIS-2009-0101>.

FOR FURTHER INFORMATION CONTACT: Ms. Andrea Simao, National Policy Manager, Pest Management, PPQ – Plant Health Programs, APHIS, 4700 River Road Unit 26, Riverdale, MD 20737-1231; (301) 851-2067.

SUPPLEMENTARY INFORMATION:

Background

Light brown apple moth (*Epiphyas postvittana* [Walker]) (LBAM) is a plant pest native to Australia with a broad host range of over 2,000 plant species, including stone fruit (peaches, plums, nectarines, cherries, and apricots), apples, pears, grapes, and citrus. LBAM larvae feed on the leaves and fruit of host plants and, under appropriate conditions, may result in significant damage. To date, natural enemies of leaf rollers have not impacted LBAM populations in the infested areas of California and few predators or parasites of LBAM have been observed.

LBAM was detected in the late 1800s in Hawaii. The interstate movement from Hawaii of cut flowers, fruits and vegetables, plants, and portions of plants, including LBAM host material, is currently prohibited unless the articles are first inspected and found free of plant pests (including LBAM) or are treated for plant pests.

Moths suspected of being LBAM were detected in Alameda and Contra Costa Counties, CA, in February 2007, and were subsequently confirmed as LBAM on March 16, 2007. Due to California's cooler climate and the potential impact of LBAM on a wide range of crops, a

response program has been conducted by the State of California with support from the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture.

APHIS' current regulatory framework and response program for LBAM is outlined in a Federal Order, which was issued on June 13, 2012, to prevent the further spread of LBAM from infested to noninfested areas. The order established restrictions on the interstate movement of regulated articles from areas where LBAM infestations are known to exist. Federal Orders were also in place prior to June 13, 2012, to prevent the further spread of LBAM from infested to noninfested areas.

On September 12, 2008, and February 4, 2009, petitions were submitted to the Secretary of Agriculture requesting that APHIS reclassify LBAM from an actionable, quarantine-significant pest to a non-actionable, non-quarantine pest and that APHIS remove the Federal restrictions placed on the interstate movement of LBAM host articles from areas where the pest had been detected. The petitions also questioned APHIS' ability to eradicate LBAM, the appropriateness of technologies used to support the eradication program, the potential impacts of these technologies on the environment and on human health and safety, and the effectiveness of the communication strategies used to inform the public about the LBAM program.

APHIS requested that the National Academy of Sciences (NAS) conduct an independent review of our draft response to the petitions. Based on the NAS' findings and recommendations, APHIS revised its initial draft response to the petitions. On March 15, 2010, APHIS published a notice¹ in the Federal Register (75 FR 12172-12173, Docket No. APHIS-2009-0101) announcing the availability, for review and comment, of our revised draft response to the petitions. We

¹ To view the notice, draft response, and the comments we have received, go to <http://www.regulations.gov/#!docketDetail;D=APHIS-2009-0101>.

solicited comments for 60 days through May 14, 2010, and received 114 comments by that date. Three commenters supported the continued regulation of LBAM as a quarantine pest. The remaining commenters expressed concerns regarding the continued regulation of LBAM as a quarantine pest. These concerns are discussed below by topic.

Reclassification

The majority of commenters requested that we reclassify LBAM as a non-quarantine pest.

LBAM meets the Plant Protection Act's (PPA) definition of a plant pest. The PPA defines the term "plant pest" as any living stage of protozoan, nonhuman animal, parasitic plant, bacterium, fungus, virus or viroid, infectious agent or other pathogen, or any article similar to or allied with any of the previous articles that can directly or indirectly injure, cause damage to, or cause disease in any plant or plant product.

In addition to concurring with APHIS' conclusion that LBAM meets the definition of a plant pest under the PPA, the NAS reviewers agreed that LBAM also met the definitions of quarantine pest as defined in the International Plant Protection Convention and of an alien species per Executive Order 13112, "Invasive Species." As NAS noted, APHIS demonstrated that LBAM is not native, is present within the United States in a limited distribution, and may cause economic harm.

Due to its extensive host range and potential to establish, LBAM continues to be a significant concern to foreign trading partners as well as to States not currently infested with LBAM and which are at risk of becoming infested. A key reason for classifying and continuing to classify LBAM as a reportable/actionable pest is the potential economic impact associated with the detection and spread of the pest to areas in the United States where it could become

established or where it might be introduced seasonally. In calendar year 2007, the value of sales of potential LBAM hosts among the at-risk States totaled \$69.4 billion, which represented 52 percent of the total value of all reported plant sales within at-risk States.

To date, APHIS has received two Special Need Requests under our regulations in 7 CFR part 301.1-2 from States seeking APHIS approval for State restrictions that are in addition to those imposed by the Federal program for nursery products from California to further ensure protection from the interstate movement of LBAM in commerce. Should APHIS reclassify LBAM as a nonactionable pest, other States have indicated that they would likely enact their own quarantines for LBAM that would restrict the movement of articles from California. Producers would then have to meet varying and perhaps stricter requirements for each State to which they ship their products, most likely resulting in increased costs for both production and LBAM control. Without sufficient regulations to demonstrate to trading partners that our efforts are successful in minimizing the impacts of LBAM within California, the ability of these industries to export internationally or domestically would be compromised.

One commenter asked that the quarantine for intrastate movement be lifted, stating that intrastate movement restrictions are burdening local market producers.

The intrastate movement of LBAM host articles is regulated by the California Department of Food and Agriculture (CDFA) not APHIS, so we cannot make the changes requested in this comment.

Several commenters expressed concern that the LBAM program remains focused on eradication as the goal.

In March 2010, APHIS announced through a press release as well as via calls with stakeholders that the objective of the LBAM program has changed from eradication to suppression and control of the moth's spread into noninfested areas of the United States.

Introduction into the United States

Many commenters disagreed with APHIS' designation of LBAM as a newly introduced pest, stating that trapping surveys conducted prior to 2005 were inadequate to detect the presence of LBAM and that independent scientists believe that LBAM may have been in California for 10 to 30 years based upon the number of LBAM interceptions at the ports of entry. Several commenters stated that the idea of LBAM being recently introduced was inconsistent with invasive pest literature, which indicates that new plant pest invaders require a long adjustment period and that early stages of invasion are difficult to detect.

The lack of any LBAM findings in the data from a 2005 Cooperative Agricultural Pest Survey in the areas of California currently infested with LBAM show that it is unlikely that LBAM has been present in the United States for a decade or more. Additionally, trapping surveys conducted by growers in the San Francisco and Monterey Bay areas, CA, in 2006, did not detect the presence of LBAM prior to the initial detection in Alameda and Contra Costa Counties, CA, in 2007.

Although LBAM had previously been intercepted at ports of entry, this does not demonstrate that the moth had become established within the United States. No LBAM were detected beyond its known distribution in California in State-based surveys conducted nationwide in 2008 and 2009. In addition, since the publication of the petition response, the journal American Entomologist published an article entitled "Biology, Identification, and History of the Light Brown Apple Moth, Epiphyas postvittana (Walker) (Lepidoptera: Tortricidae:

Archipini) in California,”² that stated that surveillance over the past 40 years for LBAM specifically, as well as other Lepidoptera, failed to detect the moth.

One commenter stated that since LBAM has been established in the United States for many years, there is no reason to continue regulating it. Two commenters stated that the genetic diversity of the LBAM population present in California supports the idea that there have been multiple introductions of LBAM, thereby suggesting LBAM was likely present prior to detection in 2007.

While two independent analyses of mitochondrial DNA indicate that multiple introductions of LBAM in Northern California may have occurred, a single large invasion cannot be ruled out.^{3, 4} The analyses do not confirm that LBAM was established prior to detection in 2007 since multiple, recent introductions occurring within a single year may have been possible.

Modeling

Several commenters expressed concern that the North Carolina State University APHIS Plant Pest Forecasting System (NAPPFASST) model inaccurately determined the potential for LBAM establishment and economic damage. One commenter stated that one of the flaws of the model was that it lacked LBAM detectability metrics and relied on qualitative statements rather than quantitative evidence. Several commenters expressed their concern that the science used to

² Brown, John W., Epstein, Marc E., Gilligan, Todd M., Passoa, Steven C., Powell, Jerry A., “Biology, Identification, and History of the Light Brown Apple Moth, *Epiphyas postvittana* (Walker) (Lepidoptera: Tortricidae: Archipini) in California,” American Entomologist, vol. 56, No. 1, pp. 34-43 (Spring 2010).

³ Rubinoff, D., B.S. Holland, M.S. Jose, and J.A. Powell. (2011) Geographic proximity not a prerequisite for invasion: Hawaii not the source of California invasion by light brown apple moth (*Epiphyas postvittana*). PLoS ONE, VI 6 (1): e16361.

⁴ Tooman, L., C.J. Rose, C. Carraher, D.M. Suckling, S. Rioux-Pasquette, L.A. Ledezma, T.M. Gilligan, M. Epstein, N.B. Barr, and R.D. Newcomb. (2011) Global mitochondrial population genetics of the invasive pest, *Epiphyas postvittana*. Journal of Economic Entomology, vol. 104, No. 5, pp. 1706-1719 (2011).

determine the APHIS response was inaccurate, including the climatic modeling used to predict crop losses and economic damages.

In response to these concerns, APHIS invited Dr. Andrew Gutierrez from the University of California, Berkeley, to meet and discuss potential predictive modeling approaches that may be useful to APHIS in better understanding pest spread and distribution. Dr. Gutierrez suggested that APHIS also use Climex and Demographic models to understand and predict LBAM spread and distribution. As discussed below, APHIS also used these other modeling approaches recommended by Dr. Gutierrez that explore the influence of ecological factors on pest populations rather than relying predominantly on temperature-based modeling.

The initial output from the NAPPFASST, Climex, and Demographic models estimated areas suitable for LBAM establishment. Most importantly, all three model outputs estimated that significant areas of the United States, particularly in the Southeast, were suitable for LBAM establishment. All models are in general agreement for areas estimated to be unsuitable for establishment based on cold temperatures. The Climex and Demographic models agreed that some areas in the Southwestern United States are unsuitable for LBAM establishment due to high temperatures. The NAPPFASST model, which does not currently incorporate high temperature mortality, disagrees and probably overestimated suitable areas in the Southwest.

Trapping

Several commenters stated that the increase in LBAM trapping finds may be due to an increase in trapping efficiency rather than to an increase in LBAM populations. One commenter stated that the increase in LBAM trap finds is irrelevant because it does not indicate potential for damage.

The trapping equipment has not changed and protocols for delimiting a detection remained constant until October 2012. The increased trap finds indicate that LBAM is spreading into new areas, increasing the potential for damage. While trapped moths by themselves do not demonstrate damage, the potential harm caused by LBAM has been discussed above and is further discussed below.

Chemicals

The majority of commenters expressed concern regarding the impacts on the environment and human and animal health associated with the use of pesticides and chemicals to control LBAM. The commenters expressed concern that chemicals used for the control of LBAM had not been tested on humans and that formulations had not been disclosed. Many commenters stated that LBAM is present in other countries and that it is considered a minor pest which is easily and cost-effectively managed as a crop-quality issue.

Under the National Environmental Policy Act of 1969 (NEPA) as amended (42 U.S.C. 4321 et seq.), APHIS is required to analyze our proposed control actions to determine if they will have an adverse effect on the environment before implementing the actions. In 2008, APHIS completed a programmatic environmental assessment for LBAM (available at http://www.aphis.usda.gov/plant_health/ea/downloads/lbam-treatmentprog-02-14-08.pdf), which evaluated two approaches: No action and treatment alternative. The treatment alternative consisted of maintaining the then applicable Federal Quarantine Order to prevent the destructive spread of the LBAM infestation, as well as implementing an LBAM eradication program in California to stop the further spread of LBAM in California. Because damage caused by LBAM can significantly threaten agricultural production in the United States, APHIS determined that the treatment alternative was the best approach to mitigating these effects and that no significant

impact on human health or the environment would result from the proposed LBAM eradication program. That Finding of No Significant Impact is available at http://www.aphis.usda.gov/plant_health/ea/downloads/lbam-fonsi-pheremone.pdf.

The United States Environmental Protection Agency (EPA) administers regulations for the protection of human health and the environment. In 2001, EPA approved the organic pheromone Checkmate for use in the United States, finding that it did not have adverse impacts on human health. This pheromone is used to suppress LBAM and has no known biological activity in other insect species. The pheromone simulates the female LBAM odor to attract and confuse the male LBAM, making it difficult for the males to find a female moth for mating. An analysis of the pheromone formulation indicated that if brought into contact with either the eye or skin it may cause slight irritation. However, this contact is unlikely to occur since the pheromone is distributed via a plastic tube dispenser that is secured to trellises, fences, and other fixtures.

One commenter stated that there is no evidence to suggest that using mating disruption via pheromones, either alone or in conjunction with other methods, is able to successfully eradicate an insect population.

The response program uses a multi-layered control and suppression strategy for LBAM that includes mating disruption, pesticide application, sterile insect technique, biological control, ongoing surveys, and regulatory controls on agricultural commodities moving out of the quarantined area. Mating disruption has been extensively studied and used successfully in Australia and New Zealand to minimize LBAM population densities.

Several commenters stated that our analysis of the impacts of LBAM and the effectiveness of natural controls relied on outdated information. One commenter noted that the

APHIS petition response cites data from the 1930s to illustrate LBAM damage before the widespread use of organophosphates, but stated that the data is flawed because pesticides in use in the 1930s have general effects similar to the effects of organophosphates, namely eliminating LBAM's natural predators.

APHIS' pest response programs are developed through analysis and evaluation of the invasive pest, including historical information, its behavior in similar environments, and possible control methods. APHIS initiates technical working groups comprised of entomologists from around the world. The LBAM working group, considering different response options, identified a multi-layered response control and suppression strategy including mating disruption, pesticide application, sterile insect technique, and biological control.

Available scientific literature suggests that natural control can be sporadic and incapable of preventing economic losses (Nicholls, 1934; Lloyd *et al.*, 1970; Collyer & van Geldermalsen, 1975; Buchanan, 1977). For example, in the United States, the use of biological control alone generally has not been sufficient to prevent economically significant damage to apple crops by tortricid pests, such as LBAM.

Integrated Pest Management

Several commenters expressed concern that the program has not taken into account non-chemical measures for controlling the LBAM population. One commenter suggested that the integrated fruit production program used in New Zealand to control LBAM be used in California. This program does not use pesticides.

The LBAM program has incorporated integrated pest management (IPM) techniques into the overall LBAM control and suppression strategy. In partnership with industry, universities, and the CDFA, APHIS developed a manual of best management practices to assist the nursery

industry in shipping clean products. This manual includes required and recommended practices that help nurseries mitigate LBAM. Examples include establishing physical barriers around nursery perimeters, adopting cultural and sanitation practices, and isolating and protecting inspected plants prior to shipment. The IPM techniques, including principles identified in New Zealand, are used along with mating disruption, sterile insect technique, chemical treatments, and biological control.

Economic Effects

Many commenters expressed concern regarding the economic effects of the LBAM quarantine on domestic growers and stated that the quarantine benefits foreign growers because American growers are required to have LBAM-free fields in order to ship interstate while foreign growers are required to have only LBAM-free shipments. Several commenters expressed concern that organic and small-scale family farms are being forced to either use pesticides, which renders them nonorganic, or shut down their farms.

The purpose of the LBAM quarantine is to protect noninfested areas of the United States from the artificial spread of the moth via the movement of host materials and to keep open export markets for U.S. products that might otherwise be closed due to the presence of LBAM in the United States. We agree that the introduction of LBAM has led to increased costs for U.S. producers. However, implementation of the regulatory framework has maintained domestic and international markets with, for example, Canada and Mexico, for California agricultural exports. It is likely that some noninfested States would enact restrictions on the movement of host material to safeguard against LBAM spread if there were no Federal program. California producers would then need to meet potentially varying requirements for shipments to each State, which could lead to both increased pesticide use and increased operational costs.

The LBAM program requires that shipments containing LBAM host materials only be free of LBAM prior to movement from the quarantined area; this requirement is parallel to the requirements for foreign shipments. There are several ways for producers to meet this requirement, including applying organic treatments, such as Spinosad and horticultural oils; applying chemical treatments; or implementing best management practices. Such practices include training of staff, scouting and monitoring of property to determine the need for treatments, and maintaining management records.

Many commenters stated that APHIS has overstated the damage done by LBAM and the potential for damage by LBAM; that the LBAM program is expensive and wasteful; and that plants listed as potential LBAM host plants were not hosts of LBAM. Many commenters stated that the only evidence of LBAM damage came from two organic berry fields in 2009, and that it was not conclusively determined that the pest that attacked those fields was LBAM.

APHIS' cost-benefit analysis indicates that if LBAM were to be reclassified as a non-actionable pest and APHIS' regulatory program for LBAM to be terminated, annual sales losses from LBAM damages of at least approximately \$694 million would occur (Fowler et al., 2009). Because of the APHIS regulatory program, the amount of avoided losses in annual sales, in comparison with the Federal funding available in the LBAM emergency response effort of almost \$100 million, indicates a potential positive benefit-to-cost ratio of at least 6.9 to 1. This does not include potential environmental losses due to factors such as increased pesticide use and other costs associated with widespread establishment of the pest. Additionally, deregulation of LBAM domestically is likely to trigger increased restrictions for LBAM-host commodities by trading partners, which are expected to have a much greater impact on American farms if LBAM were allowed to spread beyond the current quarantined area. The cost-benefit analysis supports

our conclusion that LBAM is an economically important invasive pest that meets the criteria for Federal regulation, including phytosanitary regulations and mandatory procedures with the objective of containment and suppression as an actionable quarantine pest.

Miscellaneous

One commenter stated that APHIS was legally required to submit its response to the petitions to reclassify LBAM to NAS for review.

There are no requirements for petition responses to be reviewed by third parties. APHIS elected to submit the revised petition response to NAS.

One commenter supported the continued LBAM quarantine, but stated that the current LBAM program is in need of review because it does not take into account the additional regulatory response that will be needed when LBAM populations expand into other areas of California and the United States. The commenter further stated that the regulations for the movement of cut plant material and nursery stock need to be strengthened. One commenter also supported the continued LBAM quarantine, but stated that APHIS should continually review the quarantine and lift it if the pest is found outside of the quarantined areas and the quarantine becomes uneconomical.

We continually review the LBAM program, as well as other pest programs, to ensure that the program's goals are being met. In the event that LBAM is found within the continental United States outside of California, APHIS and the affected State(s) will take appropriate action, which may include additional detection activities and regulatory protocols, to control its spread.

Therefore, for the reasons discussed in our draft responses to petitions and in this document, we are retaining our classification of LBAM as an actionable quarantine pest to

prevent its further spread into noninfested areas of United States and to maintain trade markets for U.S. agricultural products.

Authority: 7 U.S.C. 7701-7772 and 7781-7786; 7 CFR 2.22, 2.80, and 371.3.

Done in Washington, DC, this 3rd day of February 2014.

Kevin Shea,

Administrator, Animal and Plant Health Inspection Service.

[FR Doc. 2014-02764 Filed 02/07/2014 at 8:45 am; Publication Date: 02/10/2014]