



United States
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Agriculture

Risk Assessment: Exemption of Cherries from Regulated Status in the Light Brown Apple Moth Federal Quarantine Order Based on Production Practices

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INTRODUCTION

This request was initiated by PPQ Emergency and Domestic Programs (EDP) in regard to the light brown apple moth (LBAM) Federal Domestic Quarantine Order (APHIS, 2007). The specific purpose of this document is to review and analyze technical justification for exempting cherries from the LBAM regulated article list. PPQ's previous document, "**Risk Assessment: Exemption of Selected Commodities from Regulated Status in the Light Brown Apple Moth Federal Quarantine Order, 2012**", provided background information and listed commodities that could be exempted from program requirements for interstate movement based on host status and whether LBAM infested the harvested commodity (APHIS, 2012). A second document, "**Risk Assessment: Exemption of Citrus, Stone Fruits, Apples, and Pears from Regulated Status in the Light Brown Apple Moth Federal Quarantine Order Based on Production Practices**" exempted several other commodities from the LBAM program requirements. The purpose of this document is to add cherries (*Prunus avium*) to the list of exempted commodities based on production practices that exclude LBAM larvae.

Background

Since its discovery in California, APHIS and the California Department of Food and Agriculture (CDFA) have taken steps to prevent *Epiphyas postvittana* (light brown apple moth; LBAM) from becoming widely established by enforcing quarantine areas and implementing certain restrictions on movement of agricultural produce out of quarantine areas. In addition to the program requirements, specific production practices for each commodity may reduce the risk of moving LBAM out of the quarantine areas.

Scope

This document considers the chain of events that must occur for LBAM to move outside of the quarantine area on a commodity and become established in new locations.

1. LBAM larvae must be present with the commodity in the field;
2. LBAM larvae must be associated with the harvested commodity and remain with it through harvest;
3. LBAM larvae must remain with the commodity through inspection and packing;
4. LBAM larvae must survive shipment and arrive in a suitable area in which to escape for establishment;
5. Escaped larvae must complete development;
6. The resulting adults must mate;
7. Mated females must find new hosts on which to oviposit;
8. The resulting eggs must hatch and larvae develop through to adulthood in quantities sufficient to produce a breeding population.

ANALYSIS

Production practices that prevent any one of these steps from taking place will successfully prevent LBAM from leaving the quarantine areas with an agricultural commodity. Only a portion of the larvae in each step outlined above will survive and be considered in the next step, so the number of larvae potentially surviving to be considered a threat decreases with each step. LBAM is principally a leaf roller that damages fruit when population numbers are high (Danthanarayana, 1975). Since larvae appear to feed on fruit mostly by chance in proportion to the total surface area available (Lo et al., 2000); only a small portion of all the larvae in a field or orchard are expected to be associated with the fruit at harvest. Of these larvae, some are likely to be discarded with damaged fruit. More larvae will be discovered and removed during the packing and inspection process. Any remaining larvae would then have to survive shipment and arrive in a suitable area to complete development. At least two, and likely far more, larvae have to reach this step for mating to be possible. Finally, a mated female must find a suitable host on which to deposit her eggs.

Cherry can be a host for LBAM, and in England there have been isolated cases of heavy losses to cherry due to LBAM infestations (Fountain and Cross, 2007), but growers in California have taken steps to avoid heavy infestations. Cherry producers use Integrated Pest Management (IPM) strategies that include scouting and routine chemical applications designed to suppress Lepidoptera pests and specifically tortricid species, both internal feeders and leaf rollers such as LBAM. IPM strategies should keep larval infestation of origins at low or non-existent levels.

The fruit is hand harvested. At the time of packing, the fruit is washed and the leaves are removed, and a post-harvest fungicide is applied. The fruit is then sorted and graded. Graders thoroughly examine and remove fruits that exhibit internal and external damage by insects. Fruit is held in cold storage at approximately 1 degree Celsius. Because of their small size, insect damage to cherries is quite apparent, leaving them soft and discolored.

In the unlikely event that larvae should remain with fruit through sorting and packing, temperatures below 10°C prevent any further development of larvae or eggs (Danthanarayana, 1975). It is extremely unlikely that enough infested cherries would reach a consumer and be discarded in an area suitable for larval development so that adults could emerge, mate, and find new hosts.

CONCLUSION

Cherries constitute a low risk for spreading LBAM beyond the quarantine area when commercially produced according to the stated best practices for integrated pest management, hand picking, sorting, and packing.

REFERENCES

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