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Plant Protection and
Quarantine

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**Risk Assessment: Exemption of
Cucumber (*Cucumis sativus* L.) from
Regulated Status in the Light Brown
Apple Moth Federal Quarantine Order**

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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 cucumber (*Cucumis sativus* L.) from the LBAM regulated article list. Previous PPQ documents (APHIS, 2012, 2013a, 2013b) 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. This document expands upon the previously produced documents and recommends that cucumber be exempted from the LBAM quarantine due to its host status and commonly used production practices.

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 products 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.

ANALYSIS

The purpose of this document is to decide whether cucumber (*Cucumis sativus* L.) can be exempted from the light brown apple moth quarantine in California based on biology and cultural practices. We 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.

Production practices or commodity attributes that prevent any one of these steps from taking place will successfully prevent LBAM from spreading outside of the quarantine areas with an agricultural commodity.

Field prevalence - LBAM does not appear to be a pest of cucumbers. In their enquiry into the worldwide host plants of *E. postvittana*, Brockerhoff et al. (2011) did not list cucumbers as a host, nor did Danthanarayana (1975). In Australia, where LBAM is endemic, LBAM is not listed as a pest of cucurbit vegetables (Napier, 2009). The completely polyphagous nature of LBAM, however, make cucumbers a potential host, even if an unlikely one. Leafrollers are not known as pests of cucumber in California (UC IPM, 2016).

Harvest and packing – Even in the unlikely event that LBAM larvae fed on cucumber plants, they would be largely restricted to the leaves of the plants, although they sometimes web a leaf to a fruit or vegetable, causing exterior damage (Danthanarayana, 1975). Cucumbers are hand-picked and examined at the time of packing into cartons for shipping. Cucumbers are inspected in the field for mechanical damage, disease, and cosmetic defects. Unmarketable cucumbers are pulled off the plants and left to be disked into the soil after harvest is completed (Schrader et al., 2002). Based on the above information it is highly unlikely that larvae will be associated with marketable cucumber fruit.

CONCLUSION

Commercially produced cucumbers (*Cucumis sativus*) pose minimal risk for moving LBAM populations to new locations. We recommend that cucumbers be added to the list of commodities exempted from the light brown apple moth quarantine in California

REFERENCES

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