

Economic Risk Analysis: Oregon and the Light Brown Apple Moth (*Epiphyas postvittana*) Walker

Name: Light Brown Apple Moth (LBAM), *Epiphyas postvittana* (Walker)

Origin, biology, hosts: Native to Australia, introduced into India, New Caledonia, New Zealand, United Kingdom, Hawaii, and now, California (2007); 2-4 generations per year; over 120 plant genera in over 70 families; preferred hosts in the Compositae, Leguminosae, Polygonaceae, and Rosaceae (e.g., orchard fruits, nursery stock, berries, grapes, field crops)

RISK RATING SUMMARY

Relative Risk rating: **VERY HIGH**
Numerical Score: **9 (on a 1-9 scale)**
Uncertainty: **LOW**



RISK RATING DETAILS

- **Establishment Potential: HIGH**
Now established in California; Oregon climate and host distribution suitable
- **Spread Potential: HIGH** Oregon borders California and interstate travel is a high risk pathway; multiple generations per year increase dispersal ability
- **Environmental Impact Potential: LOW**
Many LBAM hosts occur in Oregon's natural environment. Himalayan blackberry, in particular, is abundant. Scotch broom and hawthorn are also prevalent. Potential impacts to native species such as salmonberry, pine, willow, and poplar are difficult to predict.
- **Economic Impact Potential: HIGH**
Oregon agriculture has many preferred hosts for LBAM; see Table for susceptible crops:

Crop/Commodity	Acres Planted	Production Value in US \$	Estimated Crop Damage Costs**	Estimated Quarantine Costs***	Total Economic Impact in US \$
Nurseries	51,800	966,000,000	15,456,000	1,236,480	16,692,480
Pears (all varieties)	17,230	89,600,000	1,433,600	114,688	1,548,288
Grapes	15,600	60,200,000	963,200	77,056	1,040,256
Caneberries	10,960 *	54,100,000	865,600	69,248	934,848
Blueberries	3,640	53,000,000	848,000	67,840	915,840
Sweet cherries	14,100	47,900,000	766,400	61,312	827,712
Apples	4,990	29,700,000	475,200	38,016	513,216
Hops	5,000 *	23,000,000	368,000	29,440	397,440
Strawberries	2,550	15,900,000	254,400	20,352	274,752
Clover (all)	19,910 *	11,500,000	184,000	14,720	198,720
Total	\$ 145,780	\$ 1,350,900,000	\$ 21,614,400	\$ 1,729,152	\$ 23,343,552

* acres harvested

** product of production value multiplied by .016 (damage estimate)

*** product of estimated crop damage costs multiplied by .08 (estimated proportion for quarantine costs)

TAKE HOME MESSAGE

If the light brown apple moth becomes established in Oregon and generally disperses throughout the state, the economic impact to all crops, commodities, and related businesses could be over \$23 million.

References

Fowler, G., L. Garrett, A. Neeley, D. Borchert, and B. Spears. 2007. Economic Analysis: Risk to U.S. Apple, Grape, Orange and Pear Production from the Light Brown Apple Moth, *Epiphyas postvittana* (Walker). USDA-APHIS-PPQ-CPHSt-PERAL Raleigh, NC.
 Oregon Agripedia. 2007. Oregon Department of Agriculture, Salem, OR.