Update of the *Lobesia botrana* Program in California

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Lobesia botrana 1st detected September 2009 in Napa Valley, California
Detection Trapping

Quarantine area:
• 2010/11: 8 km from a find
• 2012/15: 5 km from a find

Traps deployed in vineyards:
• Quarantine area: ~10 traps/km²
• Outside quarantine: ~3.5 traps/km²

Traps deployed in urban areas:
• ~2 traps/km²
Quarantine Areas
Individual Moth Catches
As of 10/08/2010

- Male catches 1st generation
- Male catches 2nd generation
- Male catches 3rd generation

~480 Km
Infestation in Napa & Sonoma Counties
• **We do not know** the pathway of introduction into California

• **Movement in California is associated with:**
  • Movement of infested wine grapes.
  • Movement of infested machinery.
  • Movement of vineyard wooden stakes.
Control Program

• **Treatments:**
  – To Vineyards within **500** meters of a find
    • In 2010-12: insecticide & MD treatments any find since 2009
    • In 2012-2015: Insecticide treatments finds previous 2 years, MD finds from previous year.

• **Insecticides applications:**
  • 1\textsuperscript{st} generation: 1 conventional or 2 (or 3) organic insecticides.
  • 2\textsuperscript{nd} generations: 1 conventional or 2 organic insecticides.

  – Insecticides used:
    • Conventional: methoxyfenozide, chlorantraniliprole
    • Organic: Bt, spinosad

• **Mating disruption**
CDFA treated urban areas

• **Treatment area:**
  • 500 meter radius from EGVM detection.

• Homeowner was given the following choices:
  ✓ Fruit/flower removal.
  ✓ Bt applications.
  ✓ Mating disruption in selected County locations.
2010/11 State quarantine area: ~6045 km²

- Male trap catches in 2010
- Male trap catches in 2011
Conditions needed for deregulation (2011 and 2013)

• 5 consecutive generations without a find
  – Insecticide treatments allowed and recommended for the 1\textsuperscript{st} and 2\textsuperscript{nd} generation
  – NO mating disruption allowed

• Monitoring
  – Trap density: 36 traps/km\textsuperscript{2}
  – for at least 2 full generations (eg. 1\textsuperscript{st} and 2\textsuperscript{nd} flight)
2010/11 State quarantine area: ~6045 km²

- Male trap catches in 2010
- Male trap catches in 2011

In March 2012, 4 counties are deregulated.
2012 State quarantine area

~3372 km²

At the end of 2012 released from regulation:
• 3 counties + 2 partially
2013 State quarantine area:
~1780 km²
2014 quarantine area: ~1780 km²
No detections in Napa County
1 moth caught in Sonoma County

2015 quarantine area: ~1155 km²
No detections
<table>
<thead>
<tr>
<th>Year</th>
<th>Napa</th>
<th>Sonoma</th>
<th>Solano</th>
<th>Mendocino</th>
<th>Fresno</th>
<th>Merced</th>
<th>San Joaquin</th>
<th>Santa Cruz</th>
<th>Santa Clara</th>
<th>Monterey</th>
<th>Nevada</th>
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<td>2009</td>
<td>5</td>
<td>(248)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2010</td>
<td>100.831</td>
<td>(3.882)</td>
<td>59</td>
<td>(6.932)</td>
<td>11</td>
<td>(1.514)</td>
<td>36</td>
<td>(1.594)</td>
<td>11</td>
<td>(8.648)</td>
<td>4</td>
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<td>2011</td>
<td>113</td>
<td>(4.930)</td>
<td>9</td>
<td>(9.048)</td>
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<td>(2.644)</td>
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<td>(2.237)</td>
<td>0</td>
<td>(11.013)</td>
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<tr>
<td>2012</td>
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<td>(4.706)</td>
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<td>(8.393)</td>
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<td>(1.844)</td>
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<td>(1.432)</td>
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<td>(8.630)</td>
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<td>2013</td>
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<td>(11.621)</td>
<td>0</td>
<td>(6.906)</td>
<td>0</td>
<td>(1.383)</td>
<td>0</td>
<td>(1.430)</td>
<td>0</td>
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<td>(11.603)</td>
<td>1</td>
<td>(6.921)</td>
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<td>(ND)</td>
<td>0</td>
<td>(1.468)</td>
<td>0</td>
<td>(2.169)</td>
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<tr>
<td>2015</td>
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<td>(11.603)</td>
<td>0</td>
<td>(6.900)</td>
<td>0</td>
<td>(ND)</td>
<td>0</td>
<td>(ND)</td>
<td>0</td>
<td>(ND)</td>
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*ND = No preliminary data available*
<table>
<thead>
<tr>
<th>Year</th>
<th>Napa</th>
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<tbody>
<tr>
<td></td>
<td><strong>Insecticide-treated hectares</strong></td>
</tr>
<tr>
<td></td>
<td><em>(hectares under MD)</em></td>
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<tr>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>2011*</td>
<td>9.590 (5.382)</td>
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<tr>
<td>2012**</td>
<td>11.330 (9.336)</td>
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<tr>
<td>2013***</td>
<td>4.775 (1.133)</td>
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<td>2014</td>
<td>1.335 (772)</td>
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<tr>
<td>2015</td>
<td>790 (0)</td>
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* Treatment areas are within 500 m of any detection in 2010 or 2011.
** Treatment areas are within 500 m of any detection in 2010, 2011 or 2012.
*** Treatment acres are within 500 m of any detection in 2011, 2012 or 2013.
Alternative hosts in California

- Only detected in the flower of olives during 2010 first generation
Conclusion

• No detection of *Lobesia botrana* in California in 2015.

• If no moths are detected by the end of the second flight (August) in 2016 the remaining quarantine will be lifted.

• Time will tell if we achieved suppression or eradication.
Thank you