Controlling Coffee Berry Borer on a Micro Scale

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The Questions

• What is the smallest area that CBB can be controlled?

• Does the product BAM have an effect on CBB infestation?

• Does feral coffee and unmanaged coffee make CBB control impossible?
How did we try to answer these questions?

• Find ~¼ acre of unsprayed coffee planting surrounded by feral coffee
• Establish six micro-plots of three test trees each
  • Erect physical barriers to prevent overspray
  • Six trees, two randomly selected micro-plots used for each treatment
How did we try to answer these questions?

• Treat at label rates for Botanigard ES with Widespread Max, BAM, and water
  • Botanigard: Rate of 1 qt./50 gal every four weeks (CBB IPM recommended)
  • BAM: Rate of 1c./5 gal. water every two weeks (label recommended)
  • Water: Sprayed every two weeks

• Harvest coffee and determine infestation and damage levels

• Compare treatments
What did we find?

- We harvested our entire field five times (Oct to Jan)
- Accumulated season damage levels were used for this analysis
- Water ~37%, BAM ~24%, Botanigard ~11% damaged beans

<table>
<thead>
<tr>
<th></th>
<th>Water vs. BAM</th>
<th>Water vs. Botanigard</th>
<th>BAM vs. Botanigard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>37.17</td>
<td>24.15</td>
<td>24.15</td>
</tr>
<tr>
<td><strong>Variance</strong></td>
<td>206.89</td>
<td>168.87</td>
<td>168.87</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>78</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td><strong>Hypothesized Mean Difference</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>df</strong></td>
<td>146</td>
<td>121</td>
<td>113</td>
</tr>
<tr>
<td><strong>t Stat</strong></td>
<td>5.79<strong>Significant</strong></td>
<td>14.00<strong>Significant</strong></td>
<td>7.33<strong>Significant</strong></td>
</tr>
<tr>
<td><strong>P(T&lt;=t) one-tail</strong></td>
<td>2.12E-08</td>
<td>2.32E-27</td>
<td>1.86E-11</td>
</tr>
<tr>
<td><strong>t Critical one-tail</strong></td>
<td>2.35</td>
<td>2.36</td>
<td>2.36</td>
</tr>
<tr>
<td><strong>P(T&lt;=t) two-tail</strong></td>
<td>4.25-08</td>
<td>4.63E-27</td>
<td>3.73E-11</td>
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<tr>
<td><strong>t Critical two-tail</strong></td>
<td>2.61</td>
<td>2.62</td>
<td>2.62</td>
</tr>
</tbody>
</table>
What did we find?

• Proportion of damaged beans was roughly consistent at each harvest
• Damaged beans increased as the season progressed
What can we conclude from this study?

• CBB can be controlled on a very small scale
• Proximity to unsprayed coffee and feral coffee has limited effect on well managed coffee
• *Beauveria bassiana* based products perform well on a small scale
  • Follow the CTAHR CBB IPM program
• BAM does not perform well in minimizing CBB infestation
• Additionally, from infested cherry to actual bean damage:
  • Botanigard had a 2 to 1 recovery (34.5% beans lost)
  • BAM and water both had a 1 to 1 recovery (47.4% and 52.5% beans lost, respectively)
The Answers

• What is the smallest area that CBB can be controlled?
  • CBB can be controlled on an individual tree basis using the CTAHR CBB IPM

• Does the product BAM have an effect on CBB infestation?
  • Yes, but it is not sufficient to provide farmers with maximum profit

• Does feral coffee and unmanaged coffee make CBB control impossible?
  • No, CBB can be controlled through best management practices
Thank you!

- Suzanne Shriner
- Marc Meisner
- Kelly Asai
- Yasha “Noa” Eads
- Jen Burt

[Logos for Department of Agriculture, USDA, and SHAC]
HDOA CBB Pesticide Subsidy Program

• HB 1514 signed by Gov. Abercrombie in 2014
  • Established five year subsidy program with $500,000 available for subsidy and operating costs
  • Reduced to $450,000 by Gov. Ige in 2015

• HB 482 Signed by Gov. Ige in 2015
  • Established a program coordinator/account clerk position
  • In recruitment now

• Available to farmers until 2019 and will cover 75 percent of the cost of the spray until June 2016, and 50 percent after that.

• SAVE YOUR RECEIPTS!!!!