**Supplemental Materials for:**

**A Field Test on the Effectiveness of Male Annihilation Technique against *Bactrocera dorsalis* (Diptera: Tephritidae) at Varying Application Densities**

The simple method of estimating the number of flies killed by unmonitored hats presented in the paper assumes that there is no difference in relative distance of hats and LDTs from the release point of each fly. The trapping grid was laid out as uniformly as possible and flies released along a transect to make this a reasonable assumption in the aggregate, but vagaries of release and field conditions means it isn't perfect. We conducted an alternative analysis estimating hat kills by linear interpolation of the LDT catches along each row (parallel with the release transect). We believe the results of this approach are slightly more accurate than the simple method presented in the main paper, but since the interpolation approach produces lower kill estimates, the simple approach is a more conservative test of our main results.

Table S1 gives the estimated kills from the simple multiplication method (est. kill) alongside those produced by row-wise interpolation (interp. kill).

Figures S1 through S6 show the LDT catches (blue) and interpolated hat kill estimates (red) for every trap servicing (2 services per treatment × age × replicate).  
Performing the same statistical analysis procedure presented in the main paper on the log transformed interpolated kill estimates results in extremely similar results. The ANOVA of interpolated number killed shows significant effect of treatment (p=0.010) and MAT age (p=0.026) with no significant interaction. A Tukey HSD test against shows significance when comparing 110 and 440 spots per km (p=0.0076; the simple estimation method gave p=0.020), but was not significant for 110 vs 220 (p=0.186) or 220 vs 440 (p=0.325).

**Table S1:** Comparing the number of flies recapture by LDT, estimated kills (est. kill) using the simple multiplication method used in the main paper, and row-wise liner interpolation (interp. kill). See Table 2 and Table 3 in the main paper for additional information.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SPLAT age | date | treatment | recaptured | est. kill | interp. kill |
| 01d | **4/12/2017** | **110** | 1746 | 1746 | 1746 |
| **220** | 826 | 1652 | 1616 |
| **440** | 393 | 1572 | 1430 |
| **5/3/2017** | **110** | 1669 | 1669 | 1669 |
| **220** | 746 | 1492 | 1447 |
| **440** | 447 | 1788 | 1755 |
| **5/31/2017** | **110** | 1951 | 1951 | 1951 |
| **220** | 613 | 1226 | 1195 |
| **440** | 300 | 1200 | 1152 |
| **8/1/2017** | **110** | 1594 | 1594 | 1594 |
| **220** | 707 | 1414 | 1363 |
| **440** | 192 | 768 | 741 |
| **8/23/2017** | **110** | 1372 | 1372 | 1372 |
| **220** | 806 | 1612 | 1508 |
| **440** | 323 | 1292 | 1221 |
| **9/13/2017** | **110** | 1732 | 1732 | 1732 |
| **220** | 541 | 1082 | 1079 |
| **440** | 287 | 1148 | 1100 |
| 14d | **4/26/2017** | **110** | 1664 | 1664 | 1664 |
| **220** | 773 | 1546 | 1531 |
| **440** | 194 | 776 | 739 |
| **5/17/2017** | **110** | 1941 | 1941 | 1941 |
| **220** | 833 | 1666 | 1625 |
| **440** | 343 | 1372 | 1349 |
| **6/14/2017** | **110** | 2365 | 2365 | 2365 |
| **220** | 882 | 1764 | 1736 |
| **440** | 474 | 1896 | 1835 |
| **8/16/2017** | **110** | 3331 | 3331 | 3331 |
| **220** | 1116 | 2232 | 2251 |
| **440** | 588 | 2352 | 2271 |
| **9/27/2017** | **110** | 2022 | 2022 | 2022 |
| **220** | 650 | 1300 | 1272 |
| **440** | 483 | 1932 | 1887 |
| **9/6/2017** | **110** | 1474 | 1474 | 1474 |
| **220** | 1056 | 2112 | 2050 |
| **440** | 292 | 1168 | 1048 |

**Figures S1 through S6:** (separate files; eg. Figure S1.pdf)

Visual representation of all LDT recaptures (blue) and interpolated hat kill estimates (red). Grey × mark LDT and hat locations. The area of each circle corresponds to the total number of flies caught or estimated killed at that location. The treatment, date, total number recaptured (Σ*trap*), and total estimated killed (Σ*interp*) is given in the title of each subplot.

Each figure (S1-S6) covers a single full replicate.