

Comparison of Eight Commercially Available Mosquito Traps in Ft. Myers, FL, August 2004.

M. Kulo¹ and K.E. McKenzie²

Summary*

In August of 2004 eight commercially available mosquito traps were compared using a Latin square test design. The Mosquito Magnet[®] Liberty and Mosquito Magnet[®] Liberty Plus, both utilizing Octenol as the additional attractant, performed significantly better than all other traps tested ($p < 0.10$).

Increased diversity in the availability of propane powered mosquito traps has led to numerous questions as to the efficacy of mosquito traps. Mosquito traps have been employed in mosquito research for over 50 years (Schreck et al. 1970). Traps that were used in research generally required an external power source, i.e. batteries and the addition of attractants, such as; light and CO₂ (Kline 2002). With the coming of Mosquito Magnet[®] technology, traps produced their own CO₂ and came with an added attractant, Octenol; some traps even produced their own power (Kline 2002). This study was designed to compare the efficacy of some of the commercially available traps.

Eight commercially available mosquito traps were evaluated in this study (Table 1). The testing was conducted in Ft. Myers, Florida, as a neighborhood study. Individual trap sites were chosen that were approximately 80 meters apart. This spacing was designed to prevent trap interference and was based on trap coverage area claims. Following a Latin square design, each trap was randomly placed in one of the chosen sites on day one of testing. Each trap was put together and operated based upon manufacturers' instructions found within the original trap boxes. Traps were rotated at 24 hour intervals, at approximately the same time each day. Contents of trap nets and/or sticky paper were frozen and then later counted and identified. Both nets and sticky paper were replaced each day. Three repetitions were conducted. A repetition was defined as the amount of time required for each trap to have successfully trapped at each site. If for any reason there was a trap failure, traps would be restarted and rerun without rotating. Nets and/or sticky paper would be replaced before the rerun.

¹ Entomologist, Florida Biting Insect Management, Ft. Myers, FL.

² Doctor of Medical Entomology, American Biophysics Corp., North Kingstown, RI.

* Excerpt from Data.

Table 1. Traps used in Ft. Myers, Florida Comparison Study.

| Designation | Treatment |
|-------------|--|
| Trap 1 | SkeeterVac-27 + BlueRhino octenol & TacTrap |
| Trap 2 | SkeeterVac-35 + BlueRhino octenol & TacTRap |
| Trap 3 | Mosquito Magnet® Defender + octenol |
| Trap 4 | MegaCatch + MC octenol |
| Trap 5 | Mosquito Magnet® Liberty + octenol |
| Trap 6 | SkeeterVac-15 + BlueRhino octenol & Tac Trap |
| Trap 7 | Mosquito Magnet® Liberty Plus + octenol |
| Trap 8 | Coleman: MD-2500 + Coleman octenol |

Raw data were normalized using a standardizing equation ($\text{SQRT } N + 1$), then analyzed using a standard t-test assuming unequal variances (Figure 1).

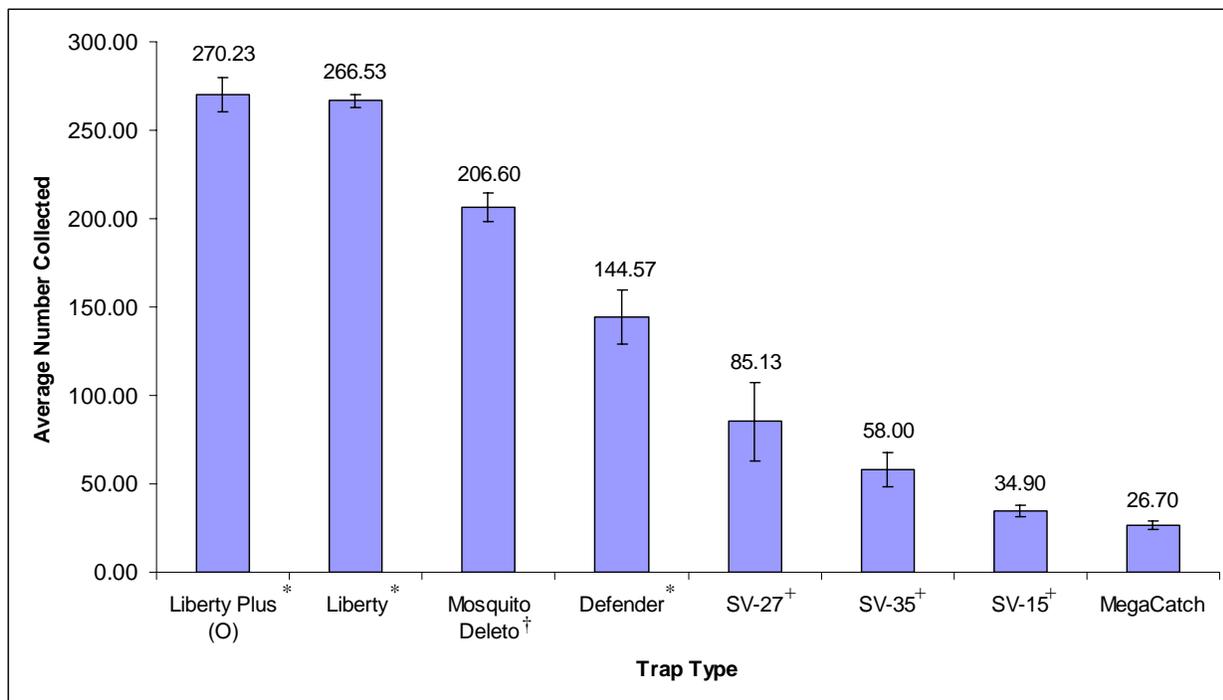


Figure 1. Comparison of Commercially Available Mosquito Traps versus Average Number of Total Mosquitoes Collected, Raw Data.

* Mosquito Magnet® Line of mosquito traps.

+ Blue Rhino Line of mosquito traps.

† Coleman Line of mosquito traps.

Based on NOAA weather data, during this study the average temperature was 82.7° F, average wind speed was 5.73 mph and the average rainfall was 0.51 inches. The wind speed and rainfall data are suspect as two hurricanes hit Ft. Myers during this phase of testing. There is a possibility that weather data was skewed due to this occurrence.

There were seven mosquito species collected in this study. Five of the seven species were relatively equal in abundance constituting between 14 and 24% of total catch numbers (Figure 2).

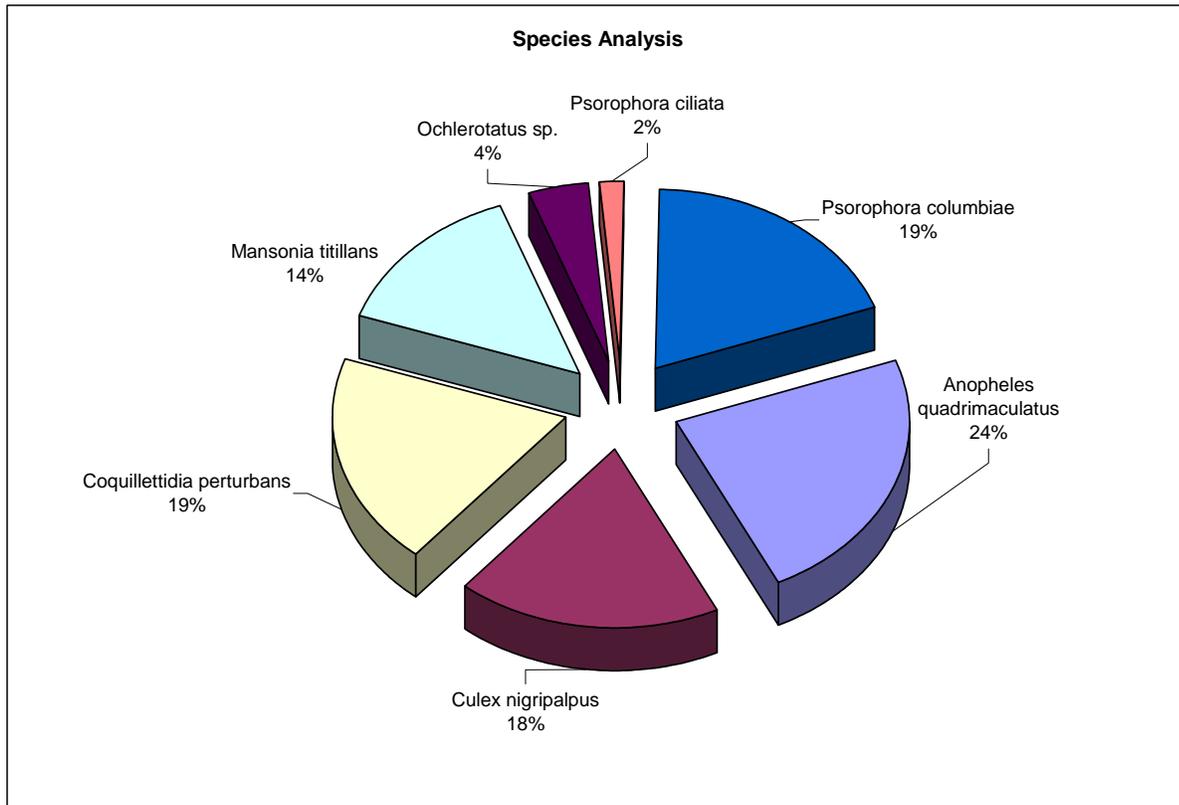


Figure 2. Mosquito species collected by relative amounts during 3 repetitions of testing in Ft. Myers, Florida: July and August 2004.

There was no significant difference between the Mosquito Magnet[®] Liberty and the Mosquito Magnet[®] Liberty Plus ($\alpha < 0.05$, $p = 0.38$), however at the 95% confidence level, the Mosquito Magnet[®] Liberty and the Mosquito Magnet[®] Liberty Plus collected significantly more mosquitoes than all other traps. Also at the 95% confidence level, the Mosquito Deleto collected significantly more than five other traps, the Mosquito Magnet[®] Defender collected significantly more than three other traps, the SV-27 collected significantly more than one other trap, the SV-35 collected significantly more than two other traps and the SV-15 collected significantly more than one trap (Figure 3).

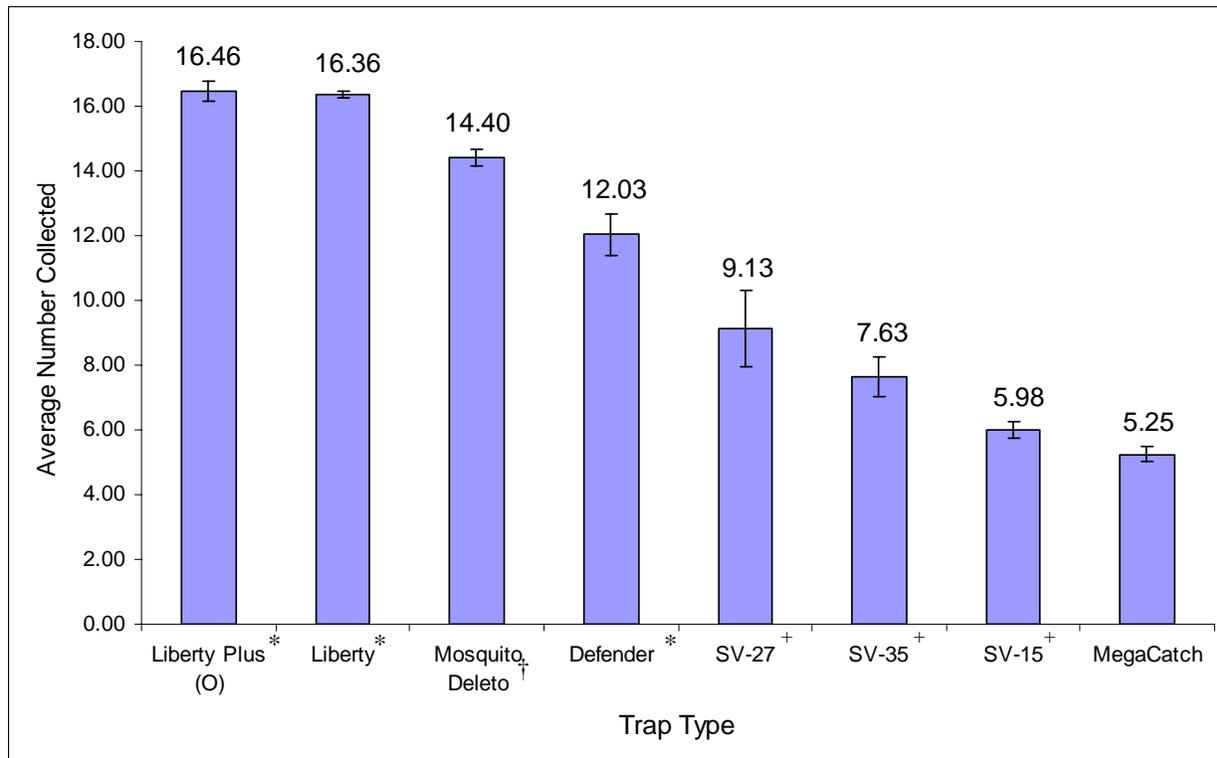


Figure 3. Comparison of Commercially Available Mosquito Traps versus Average Number of Total Mosquitoes Collected, Normalized Data (SQRT (N +1)).

* Mosquito Magnet® Line of mosquito traps.

+ Blue Rhino Line of mosquito traps.

† Coleman Line of mosquito traps.

In general, Mosquito Magnet® products collected more mosquitoes than other traps. The Mosquito Magnet® Liberty and Mosquito Magnet® Liberty Plus caught from 29 to 912% more mosquitoes than traps made by other companies (Figure 1).

The 2004 mosquito season was unusual in that the early part of the season was delayed and perhaps stunted from near drought conditions (weather.com) and the latter part of the season had an unusually high occurrence of hurricanes.

AUTHOR CONTRIBUTION

M. Kulo performed on-site testing, while K. McKenzie analyzed test results.

REFERENCES

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