

Comparison of Seven Commercially Available Mosquito Traps in Ft. Myers, FL, April 2004.

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Summary*

In April of 2004 seven commercially available mosquito traps were compared using a Latin square test design. The Mosquito Magnet[®] Liberty and Liberty Plus performed significantly better than all other traps tested, $p < 0.05$.

Mosquito traps are not a new development; they have been used for more than 50 years for research and surveillance of mosquito populations (Schreck et al. 1970). However, prior to American Biophysics Corp.'s Mosquito Magnet[®] traps, mosquito traps were not commercially available nor were they consumer friendly. Most research traps required the provision of an external power source, i.e. batteries and attractants, such as; light and CO₂ (Kline 2002). Soon after the introduction of the Mosquito Magnet[®] line of mosquito traps, many outdoor and "gadget" companies began offering their own mosquito traps to the general public. This study was designed to compare the efficacy of some of these commercially available traps.

Seven 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.

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 + MegaCatch octenol
Trap 5	Mosquito Magnet [®] Liberty + octenol
Trap 6	SkeeterVac [®] -15 + BlueRhino octenol & TacTrap
Trap 7	Mosquito Magnet [®] Liberty Plus + octenol

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

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* Excerpt from Data.

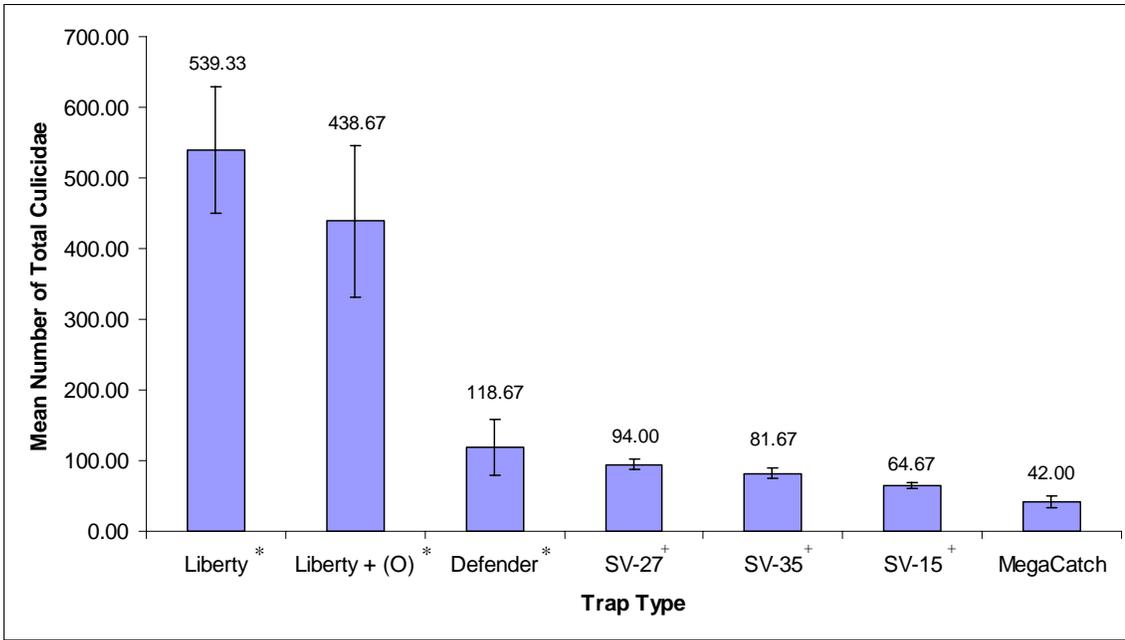


Figure 1. Comparison of Commercially Available Mosquito Traps versus Average Number of Total Mosquitoes Collected, Raw Data.

* Mosquito Magnet® Line of mosquito traps.

+ Blue Rhino Line of mosquito traps.

During this study the average temperature was 76.6° F, average wind speed was 7.81 mph and the average rainfall was 0.07 inches.

There were seven mosquito species collected in this study. The primary species collected during testing was *Culex nigripalpus*, constituting 64% of total catch numbers (Fig 2).

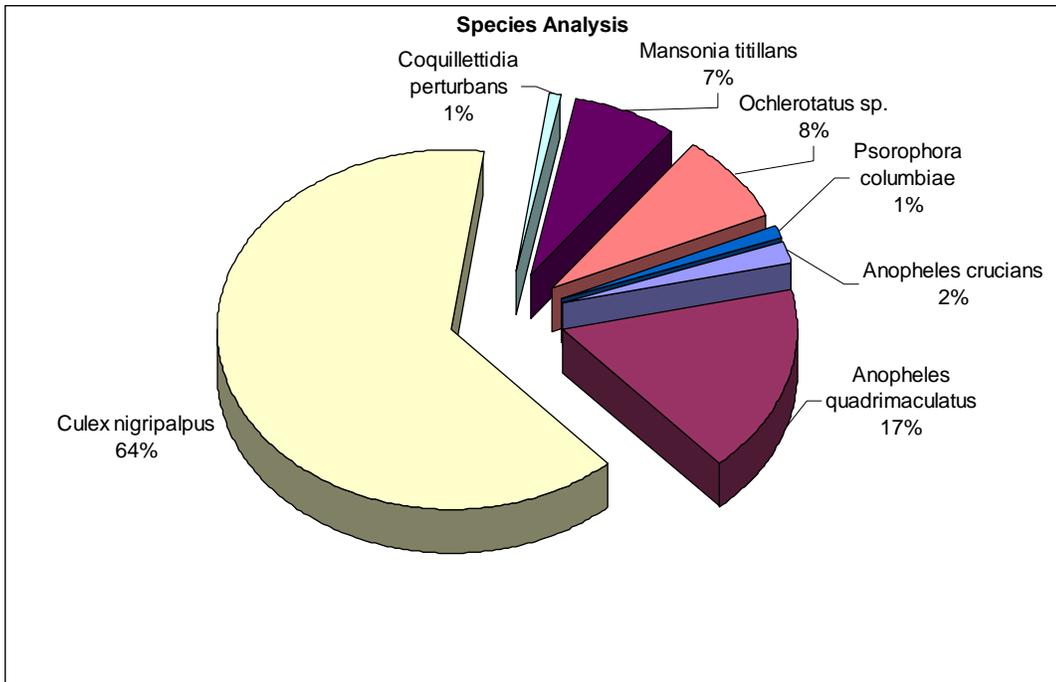


Figure 2. Mosquito species collected by relative amounts during 3 repetitions of testing in Ft. Myers, Florida: April and May 2004.

There was no significant difference between the Mosquito Magnet® Liberty and the Mosquito Magnet® Liberty Plus ($\alpha < 0.05$, $p = 0.24$), however both traps collected significantly more Total Culicidae than all other traps ($\alpha < 0.05$). At the 90% confidence level or better; the Mosquito Magnet® Defender collected significantly more than one other trap, the SV-27 collected significantly more than two other traps, the SV-35 collected significantly more than two other traps and the SV-15 collected significantly more than one trap (Figure 3).

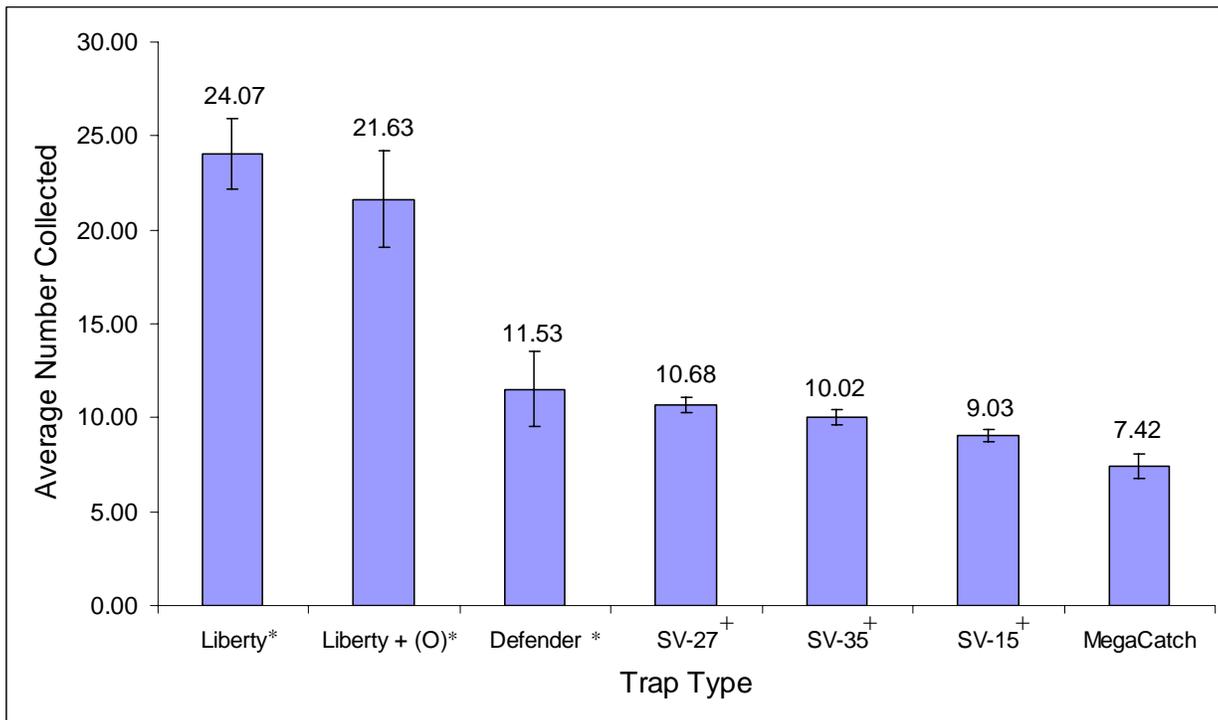


Figure 3. Comparison of Commercially Available Mosquito Traps versus Average Number of Total Mosquitoes Collected, Normalized Data (SQRT (N + 1)).

- * Mosquito Magnet[®] Line of mosquito traps.
- + Blue Rhino Line of mosquito traps.

Overall the Mosquito Magnet[®] products collected more mosquitoes than the other traps. The Mosquito Magnet[®] Liberty and Mosquito Magnet[®] Liberty Plus caught at least 365% more mosquitoes than the closest non- Mosquito Magnet[®] competitor (Figure 1).

AUTHOR CONTRIBUTION

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

REFERENCES

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- Schreck, C.E., H.K. Gouck and K.H. Posey. 1970. An Experimental Plexiglas[®] Mosquito Trap Utilizing Carbon Dioxide. *Mosquito News*, 30(4): 641-45.