REPORT TITLE

Efficacy of the Mosquito Magician 2016 Formulation when Applied as a Direct Spray Application against Yellow Fever Mosquitoes (*Aedes aegypti*)

STUDY

Direct Spray 16

TRIAL

AEDSAE

SPONSOR CODE

N/A

EXPERIMENTAL START DATE

April 20, 2016

EXPERIMENTAL COMPLETION DATE

April 27, 2016

REPORT DATE

June 02, 2016

TEST FACILITY/AUTHORS

Eric Snell, Todd Smith, Randy Holliday, and Patrick Standley
Snell Scientifics, LLC
188 Vega Road
Meansville, GA. 30256
770.358.4591
Email: esnell@snellsci.com

SPONSOR

Sprinkler Magician

MATERIALS AND METHODS:

The following is the Snell Scientifics Standardized Testing Method for evaluating the efficacy of pesticides when applied as direct spray applications against various arthropod species. Further details related to this specific study are described following the test method summary. Select action items and illustrations have been removed from this standardized test method in an effort to make the report more precise and accurate to the study conducted. Any details removed from this test method were deemed irrelevant to the study conducted in this report.

311.1 **Materials:**

Test Arena Information:

311.1.1 Treatment Arenas: 1.75" CPVC Mesh Cartridge (BioQuip 7250NSW mesh). The Test Arenas were used to contain the test systems during the test substance applications.

311.1.2 Post-Treatment Arenas: 20oz SOLO cup with lid. The Post-Treatment arenas were used to contain the test systems in a clean environment after exposure to the test substance(s).

311.1.3 Food/Moisture: 10% sucrose soaked cotton swabs.

Test Equipment:

311.1.4 Volumetric Measuring Equipment: Graduated cylinders and/or beakers were used as needed in preparing and/or measuring the flow rates of the test substance(s).

311.1.5 Digital Balance(s): Balances were used as needed in preparing and/or weighing the test substance canisters before and after applications.

311.1.6 CO_2 and Regulator: A standard 20 pound CO_2 cylinder with regulator was used to anesthetize the test systems and sort them into the test arenas (prior to exposure to the test substances). The test systems were allowed to adequately recover from anesthetizing before being exposed to the test substance(s), and they were not anesthetized at any point following exposure to the test substance(s). Any additional transfers required after exposure to the test substances was conducted using methods that did not involve anesthetizing.

311.1.7 Intermediate Sorting/Transfer Containers: Additional sorting and transfer containers were used to aid in moving the test systems from the primary rearing/collection containers and into the treatment and/or post-treatment arenas.

311.1.8 Metronome/Timing Equipment: A metronome and/or other timing equipment were used as needed to assist in the timing when conducting the applications and/or when collecting the observations.

Application Equipment:

311.1.9 Application Equipment: Snell Sci. Trigger Sprayer.

RESULTS / DISCUSSION:

The results of this study are shown in Table 1, which illustrates the percent mortality for the yellow fever mosquitoes (*Aedes aegypti*). In addition to the percent mortality that is shown in Table 1, the mortality rates that were recorded following the test substance applications were statistically analyzed using a t test for independent samples. The analysis was conducted using a one-tailed distribution and probability value of $p \leq 0.05$ to evaluate if any significant differences in mortality were recorded between the control and the test substance populations.

The Mosquito Magician 2017 formulation recorded 93% mortality within 24 hours after the applications and reached 98% mortality by day 5 of the study. The untreated control population only recorded 5% mortality during the 6-day study. The specimens that were treated with the Mosquito Magician 2017 formulation recorded mortality rates that were significantly higher than the untreated control population from the 24-hour observation until study completion (6-days).

CONCLUSION:

Kill Testing

The results of the study indicate that an 8:192 dilution of the Mosquito Magician 2017 formulation has the ability to kill yellow fever mosquitoes (*Aedes aegypti*) when used as a direct spray application.

Yellow Fever Mosquito - % Mortality											
Test Substance:	Pre-trt	30 min	1 hr	2 hr	4 hr	24 hr	2 DAT	3 DAT	4 DAT	5 DAT	6 DAT
Controls - Untreated	0%	0%	0%	0%	0%	0%	0%	0%	3%	3%	5%
Mosquito Magician 2017 Formula (8mL:192mL water)	0%	0%	0%	0%	10%	93%	95%	95%	95%	98%	98%

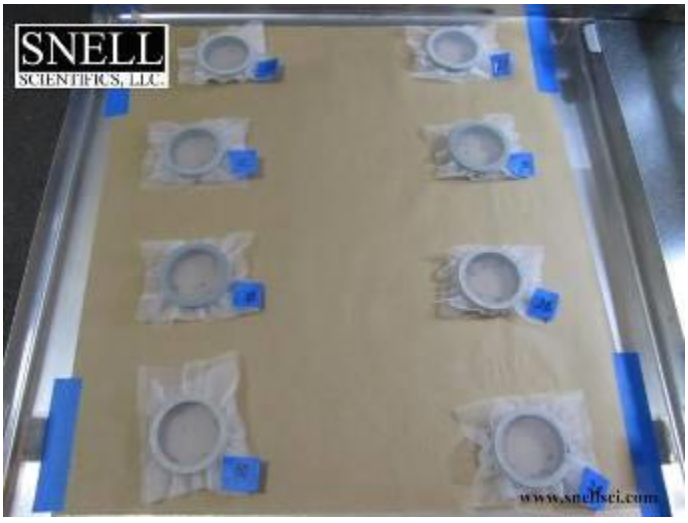
Repellency Testing

The results of the study indicate that each of the Mosquito Magician formulations have the ability to provide measurable yellow fever (*Aedes aegypti*) mosquito repellency when applied as a foliar application, with the 2017 Mosquito Magician formula providing slightly higher repellency than the other test formulas supplied by Mosquito Magician.

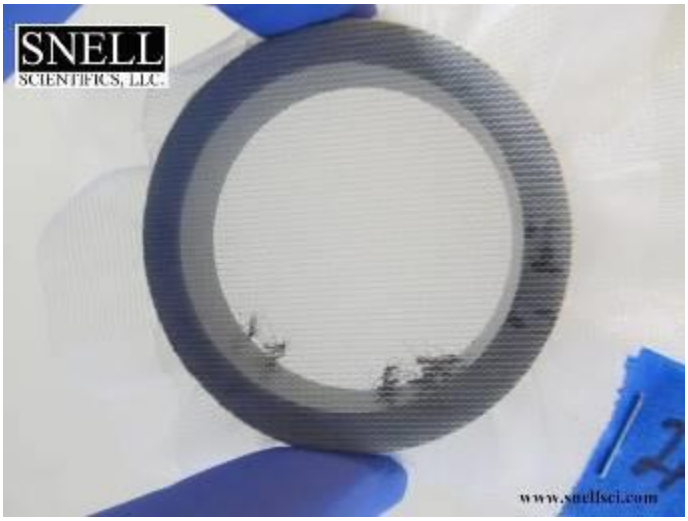
APPENDIX A: PHOTOGRAPHS

Photograph 1. Test Substance

Photograph 2. Test Arenas after Treatment



Photograph 3. Moribund Test Systems after Treatment



Photograph 4. Controls in Post-Treatment Arena

Photograph 5. Test Systems in Post-Treatment after Treatment

END