

## Surveillance for LAC Virus Vectors: An Evaluation of 4 Mosquito Traps and Their Gonotrophic Biases - Brian Byrd

- 1) A lot of LAC seen in western NC
- 2) Vector species
  - a) Primary vector - *Ochlerotatus triseriatus*
  - b) Probable secondary vector- *Aedes albopictus*
  - c) Another possible player - *Ochlerotatus japonicus*
- 3) Research question
  - a) Age matters
    - i) Nulliparous - low risk
    - ii) Parous - high risk
  - b) Younger mosquitoes are more of a nuisance
  - c) Disease transmission rises as abundance drops after blood feeding and egg laying
  - d) Are there inherent physiological differences in traps?
- 4) Determining mosquito age
  - a) Nulliparous - ovarian tracheal skeins are tightly wound
  - b) Parous - skeins become uncoiled
  - c) Reference: Evaluations of Mosquito Age Grading Techniques Based on Morphological Changes, L. E. Hugo, S. Quick-miles, B. H. Kay and P. A. Ryan, *Journal of Medical Entomology* May 2008: Vol. 45, Issue 3, pp 353-369
- 5) Traps
  - a) CO<sub>2</sub>-baited CDC light trap
  - b) CO<sub>2</sub>-baited BG Sentinel trap ([http://www.bg-sentinel.com/en/mosquito\\_trap\\_tests.html](http://www.bg-sentinel.com/en/mosquito_trap_tests.html))
  - c) CO<sub>2</sub>-baited Fay-Prince trap
  - d) Tackle box type infusion-baited gravid trap
- 6) Protocol
  - a) Traps
    - i) Traps set pre-dawn
    - ii) Visited after lunch to collect
    - iii) Collected again after 9 PM
    - iv) Rotated traps to next trap position
  - b) Mosquitoes
    - i) ID to species
    - ii) Determine physiological status
    - iii) Determine blood meal status (1-4%)
    - iv) Determine gravidity
    - v) Virus testing - not done yet
- 7) Results
  - a) BG Sentinel collected 58% of mosquitoes
    - i) Most *Oc albopictus*
    - ii) Most *Oc triseriatus*
  - b) Gravid trap collected about the same number of *Oc japonicus* as the BG Sentinel trap
- 8) Parity status

- a) BG Sentinel trap collected the most parous mosquitoes (60%)
- b) Gravid trap collected the most gravid mosquitoes (90%)
- c) *Aedes albopictus* were primarily nulliparous

9) Conclusions

- a) BG Sentinel doesn't seem to be different than the other CO<sub>2</sub>-baited traps except in abundance
- b) BG Sentinel best for collecting parous mosquitoes
- c) Gravid traps still best for arbovirus surveillance