

---

# The Trials and Tribulations of a Fledgling Pesticide Resistance Program

---

By Ellen P. Bidlack

# Introduction

---

- CDC Bottle assay kit
- Mosquito collections
  - CDC light traps
  - Gravid traps
- Results
  - Sumethrin
  - Prallethrin
- Conclusions



# How to request a kit

---

- Email -  
[USBottleAssayKit@cdc.gov](mailto:USBottleAssayKit@cdc.gov)
- Fill out form: Asks what reagents and materials you need



# Contents of the kit

- Pesticides
- 15 - 250ml Wheaton bottles
- Disposable pipettes
- Mouth aspirator
- 2 - 50ml tubes
- Lab mat
- Directions, SDS and data sheets



# Supplied by User

---

- Mosquitoes
- Containers for mosquitoes
- Acetone or ethanol
- Markers
- Tape for labels
- Gloves, goggles and lab coat



# Ideal mosquitoes

---

- Same age
- Same species
- Not blooded
- Not gravid
- Good physical condition



# Obtaining mosquitoes

---

- CDC light trap baited w/ CO<sub>2</sub>
  - Set 3 traps at EEEV foci in West Bridgewater
  - 2 nights
- Gravid trap
  - Set 4 traps at site in Whitman
  - Held mosquitoes for 2 days and allowed them to lay eggs





# CDC light trap

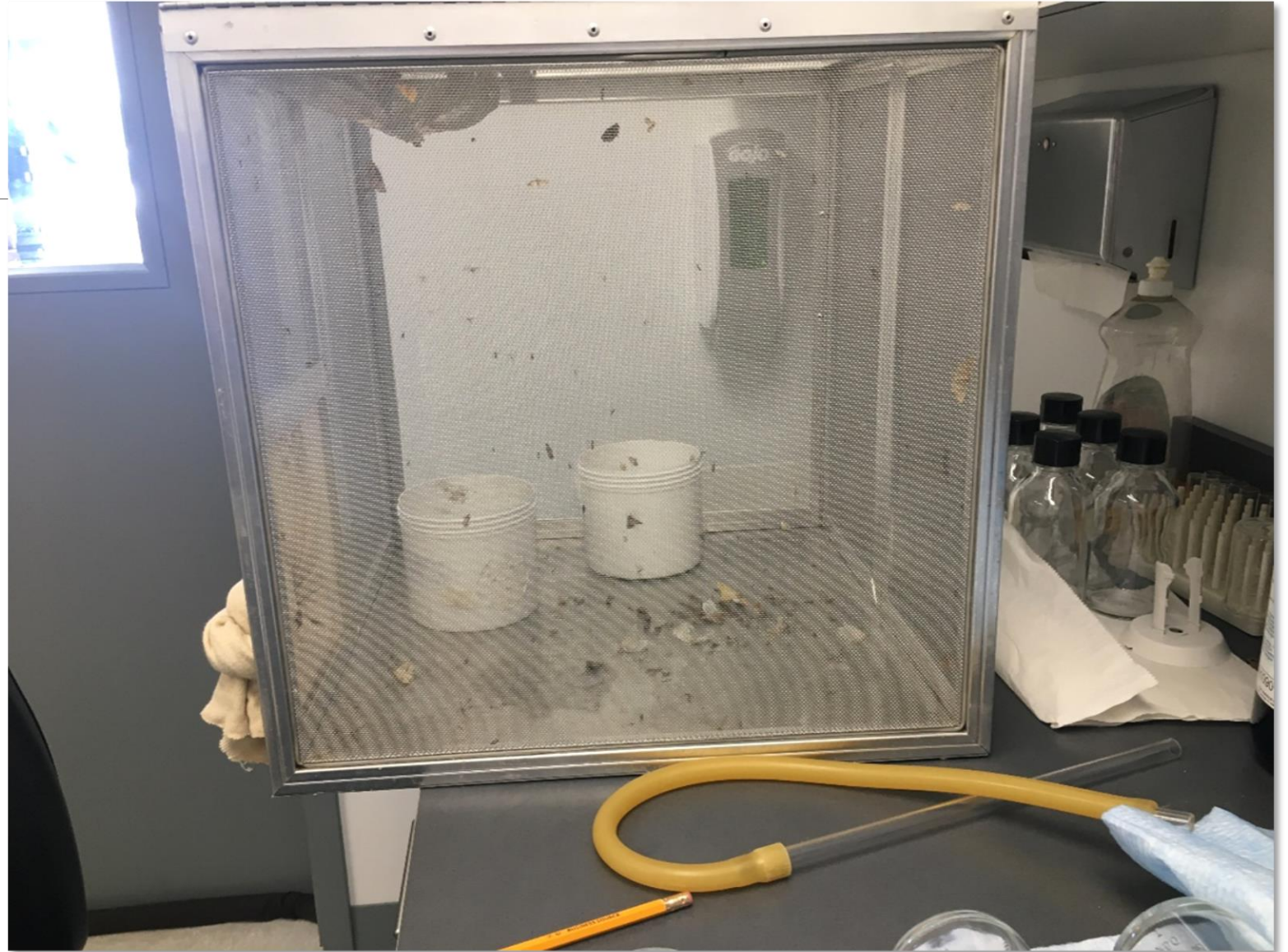
- Wooded swamp and shallow marsh or fen
- Hocomock Swamp – West Bridgewater
- 12 and 19 June 2020

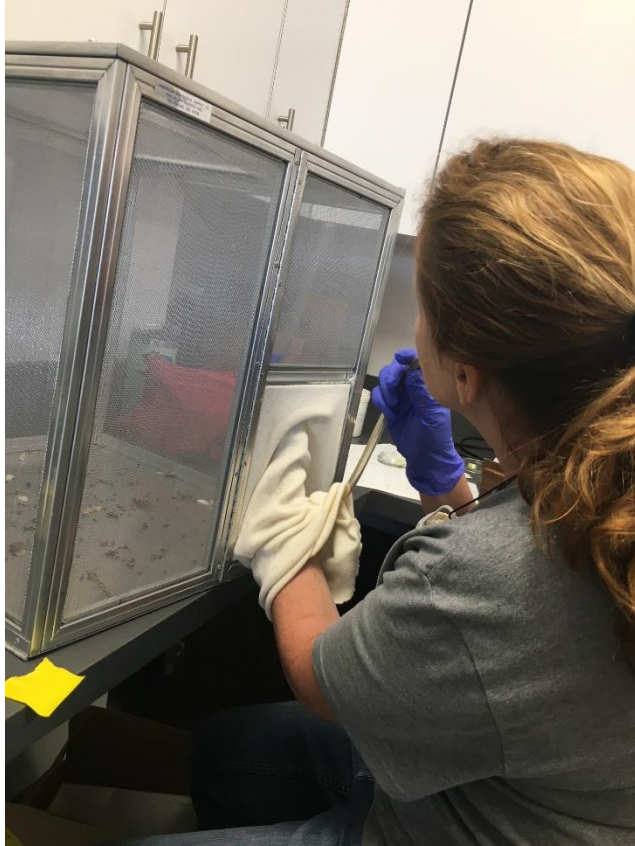




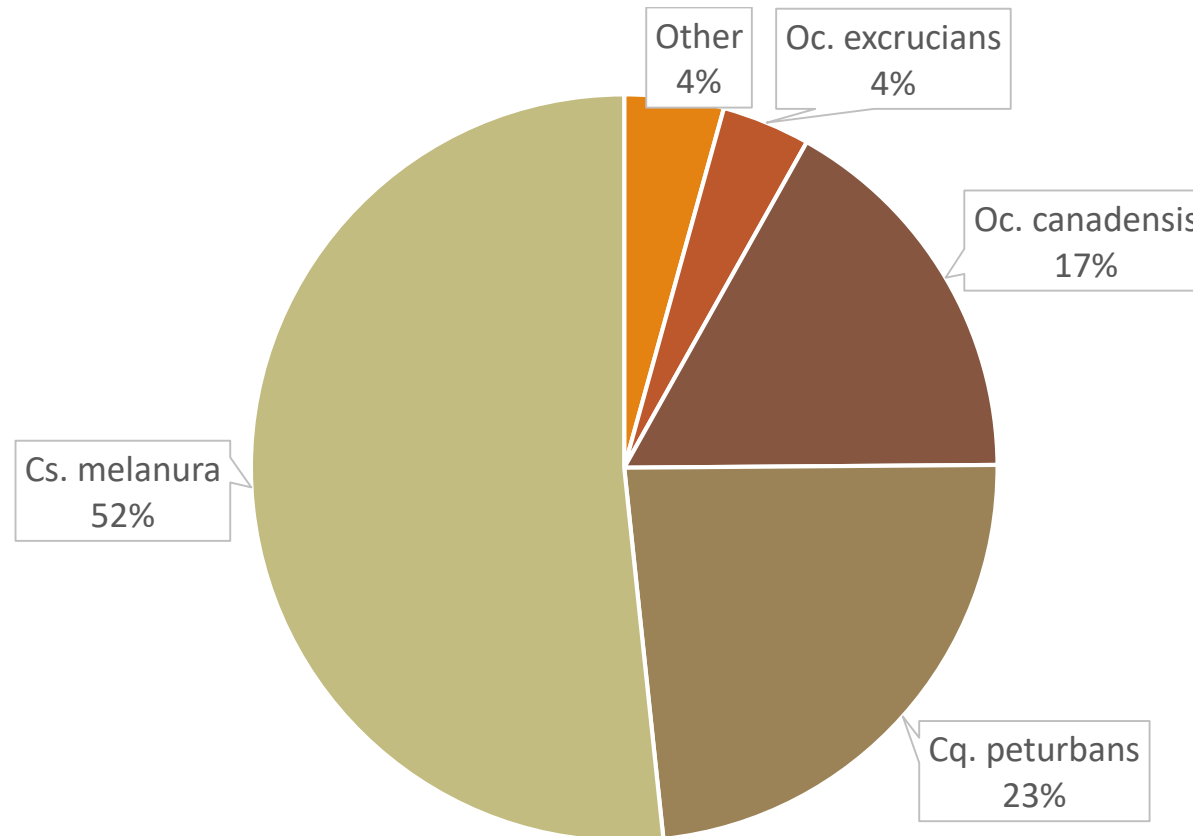
# Collected Mosquitoes

- Drought decreased collections
- Mortality
- Diversity of the collection



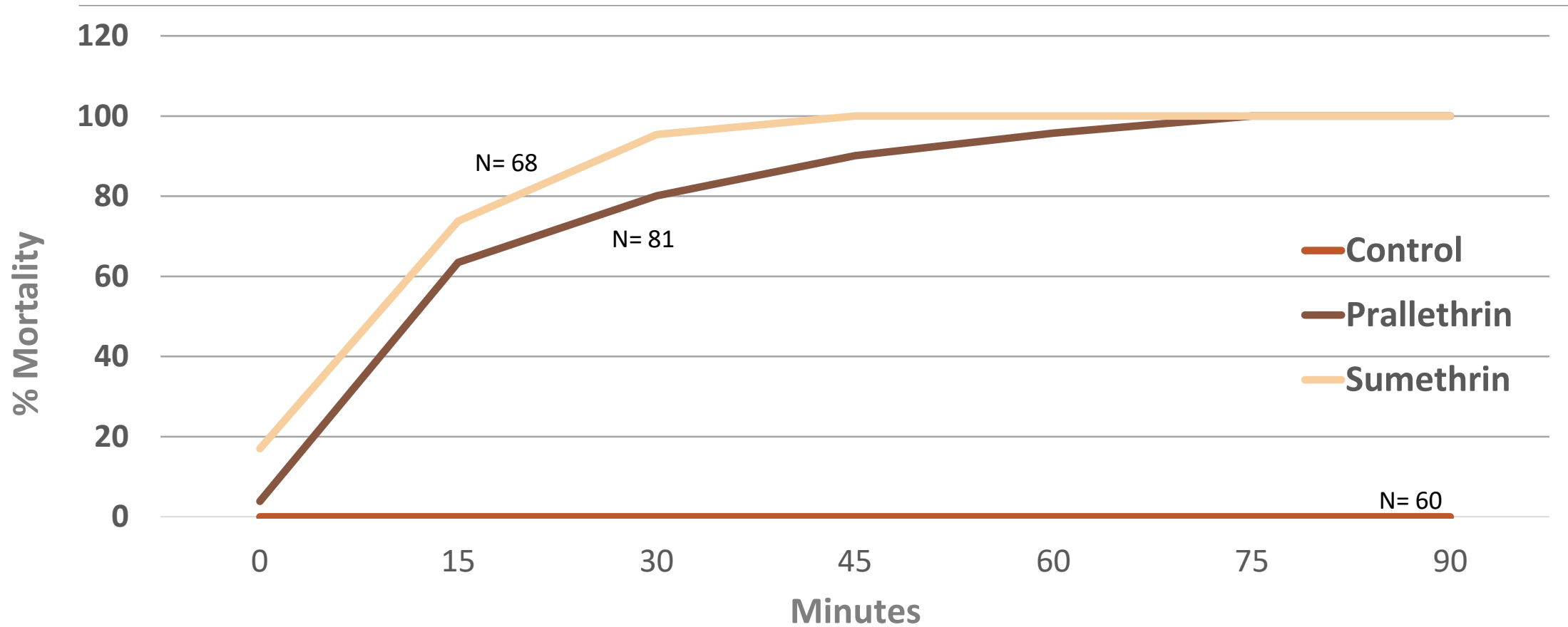


# Species composition of CDC traps



| Species              | Count |
|----------------------|-------|
| An. quadrimaculatus  | 1     |
| Cq. peturbans        | 49    |
| Cs. melanura         | 108   |
| Cx. pipiens/restuans | 2     |
| Cx. salinarius       | 5     |
| Oc. aurifer          | 1     |
| Oc. canadensis       | 35    |
| Oc. excrucians       | 8     |
| Total                | 209   |

# Mortality over time

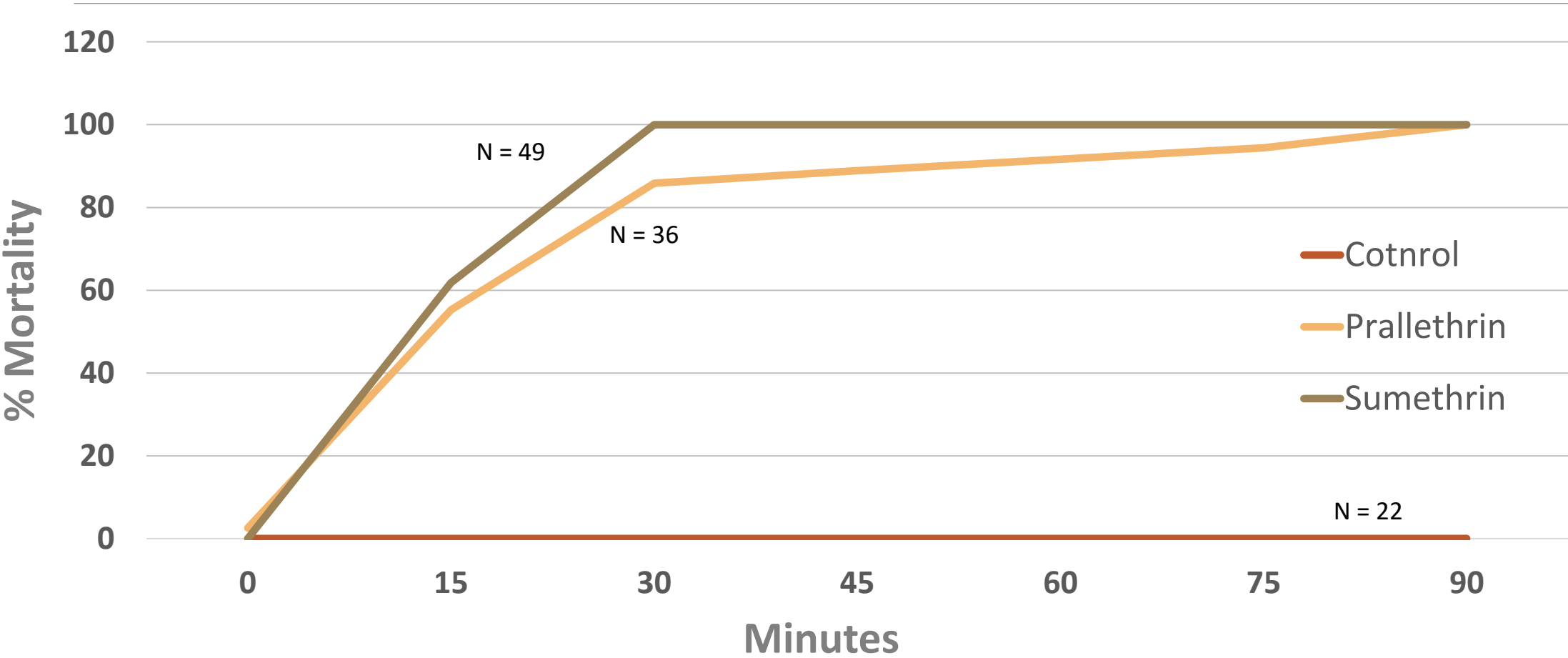




- Shallow marsh and fen
- Boarder of Whitman and Brockton
- Washburn Meadow
- 4 gravid traps along power line road
- 9 July 2020
- Held adults for several days to allow egg laying
- Hatched eggs
- Rearing larvae did not work well



# Mortality over time for *Cx. pipiens/restuans*



# Problems

---

Mixed species

Unknown age

Weakened from handling

Time consuming

Limited data on susceptible mosquitoes

Difficulties rearing mosquitoes in lab

# Solutions

---

Collect and rear larvae when possible

Known age

Sort Species

Improve ability to rear mosquitoes

Accept and plan for the time





# Thank You

---

Amanda Cote

Brandon Gillett

James Burtis - NE VBD – Northeast Regional Center  
for Excellence in Vector-Borne Diseases

John Shepard

