Quarter 1 (6/21/2019 – 6/30/2019) Report

Florida Department of Health Contract CODQJ

Improving our understanding of domestic mosquito control of *Aedes aegypti, Ae. albopictus, and Culex quinquefasciatus* through assessments of insecticide susceptibility

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**Task List**

1. Deploy traps each quarter to collect a minimum of 100 eggs from adult *Aedes* and *Culex* mosquitoes or collect 100 *Aedes* and *Culex* larvae from within the identified sites or collect eggs from adult *Aedes* and *Culex* mosquitoes hatched from previously collected eggs from identified sites that were reared to adulthood and allowed to blood feed and lay eggs. Document the number of eggs and larvae collected and the number and the species of adult mosquitoes that hatched from collected eggs in the Quarterly Report.
2. Conduct insecticide resistance testing on mosquitoes collected as eggs (parental generation) or successive generations (within two generations of parental generation) of mosquitoes within 60 days of collection and hatching of eggs. Document the insecticide resistance testing and results in the Quarterly Report.
3. Conduct CDC bottle bioassay testing on mosquitoes from a minimum of three identified sites against one pyrethroid and one organophosphate each quarter. Document the bioassay testing and results in the Quarterly Report and post the CDC bottle bioassay results to Provider’s reporting website, https://fmel.ifas.ufl.edu/.
4. Map the distribution of where *Aedes* and *Culex* eggs or larvae are collected and used in CDC bottle bioassays each quarter. Document the mapped distribution in the Quarterly Report.
5. Distribute the results of the CDC bottle bioassay testing to the Florida Mosquito Control Program managers in the counties of the identified sites each quarter. Document the distribution of the results in the Quarterly Report.
6. Prepare a Quarterly Report, post it on Provider’s reporting website, and submit it to the Contract Manager within 15 days following the end of each quarter, but no later than invoice submission. At a minimum, include the following information in the report:
   1. The number of eggs and larvae from adult mosquitoes collected and hatched;
   2. The number of eggs and larvae from adult mosquitoes in which insecticide testing was conducted;
   3. Documentation of mapping of egg collection results including species identification and location of collection;
   4. Documentation of results of CDC bottle bioassay testing of mosquitoes for insecticide resistance; and
   5. Documentation of CDC bottle bioassay testing results distribution to Florida Mosquito Control Program Managers.
7. Identify the methods for distributing information on resistance to tested insecticide active ingredients. Prepare an Annual Report, including the identified methods, and submit it to the Contract Manager within 45 days from the end of the contract term, but no later than submission of the final invoice. At a minimum, include the following in the report:
   1. The method for informing Florida Mosquito Control Programs, the Department, and the general-public on the regions of Florida that are most likely to have populations of Zika, Dengue, Chikungunya, and West Nile Virus mosquito vectors;
   2. The method for informing Florida Mosquito Control Programs and the Department on the efficacy of the insecticides that are currently being used in their programs (i.e., whether the chemicals are working as they should to reduce the mosquito populations); and
   3. The method for informing Florida Mosquito Control Program managers on the relationship between the CDC bottle bioassay (a lab assay) and the efficacy of spraying mosquitoes at the insecticide label rates.

**Tasks Progress**

1. Traps were deployed this quarter and 15,898 *Aedes* eggs and 752 *Culex quinquefasciatus* larvae were collected from the traps. Of the 15,898 *Aedes* eggs collected, there was ≈ a 10% hatch rate, resulting in 1334 *Aedes* adults emerging. The *Culex quinquefasciatus* larvae collected had a ≈ 75% survivorship rate, resulting in 564 *Culex quinquefasciatus* adults emerging. The species identification for the resulting *Aedes* adult mosquitoes was *Aedes aegypti*, *Ae. albopictus,* and *Ae. triseriatus*. The *Aedes* eggs processed this quarter came from:
   1. Escambia County
      1. Amanda Lane
   2. Volusia County
      1. Nova
      2. YMCA

The *Culex quinquefasciatus* larvae processed this quarter came from:

* 1. Monroe County
     1. Key West

1. Due to the short length of Quarter 1 (Q1), insecticide resistance testing was not conducted on mosquitoes collected as eggs and larvae during Q1. Insecticide resistance testing for the mosquitoes collected during Q1 started at the beginning of Quarter 2 (Q2). The insecticide resistance testing results will be provided in the Q2 report
2. CDC bottle bioassay testing was not conducted on mosquitoes collected from a minimum of 3 sites during Q1. CDC bottle bioassay testing for the mosquitoes collected during Q1 started at the beginning of Quarter 2 (Q2). The CDC bottle bioassay testing results will be posted to <https://fmel.ifas.ufl.edu/> at the end of Q2.
3. The distribution of where *Aedes* eggs and *Culex* larvae were collected was not mapped. The distribution will be mapped and provided in the Q2 report.
4. Since there was not enough time to conduct the CDC bottle bioassay testing during Q1, the results of the bioassay testing were not distributed to Florida mosquito control program managers. Distribution of results from the bioassay testing will take place during Q2 and documentation of the results distribution will be provided in the Q2 report.
5. This Quarterly Report in combination with the information posted on the Reporting website satisfies this task.
6. All necessary information will be provided at the final annual report.