

# U GEOGRAPHY AND INEQUALITIES LAB (GaIL)

## Mosquito Control Capabilities in Florida During COVID-19

*Findings from a survey of state-approved and open programs*

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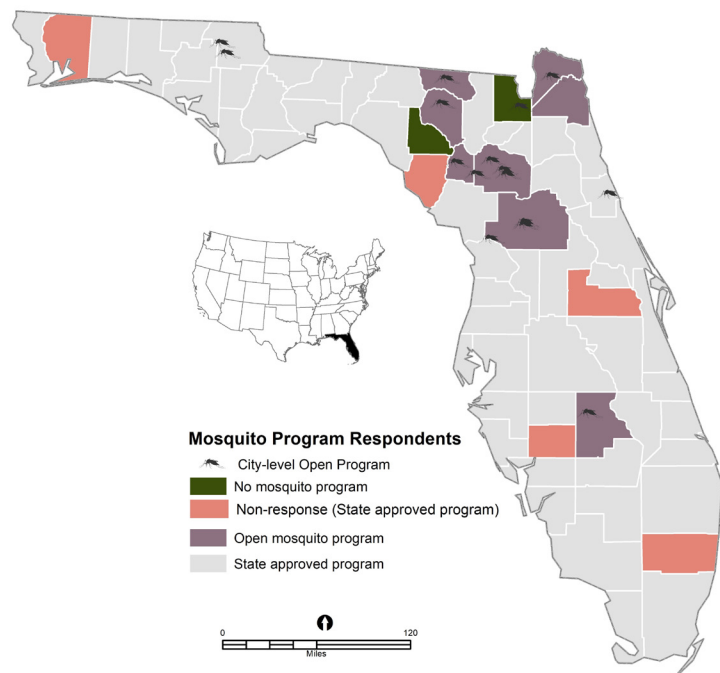
### Key Findings

- ▶ 97% of surveyed Florida mosquito control programs reported remaining in operation during COVID-19 and 70% experienced low impact on activities.
- ▶ 31% of responding programs indicated that COVID-19 would not affect the fiscal year 2020-2021 budget, and 52% indicated they were not sure if the budget would be impacted.
- ▶ 98.5% of programs report they have not had to dismiss any workers during COVID-19, and 87.7% of programs report that staffing levels are adequate.
- ▶ 71.4% of programs report communicating with state or local public health departments.
- ▶ 68.6% did not carry out community outreach and education and 73.9% did not communicate or share equipment or personnel with nearby programs during COVID-19.
- ▶ 75% of programs did not conduct pesticide resistance testing.
- ▶ 85.5% of programs did not use flocks of sentinel chickens, and 83.8% of programs did not use mosquito pooling as arbovirus surveillance.

### Background

In early May, the National Association of County and City Health Officials (NACCHO) reported impacts on vector control programs caused by the COVID-19 pandemic from negligible changes to complete program shut down<sup>1</sup>. The goal of this study was to investigate the impact of COVID-19 on the capabilities of Florida mosquito control programs which may be uniquely equipped to handle these challenges as they run nearly year-round and see a variety of mosquito-borne illnesses annually<sup>2</sup>.

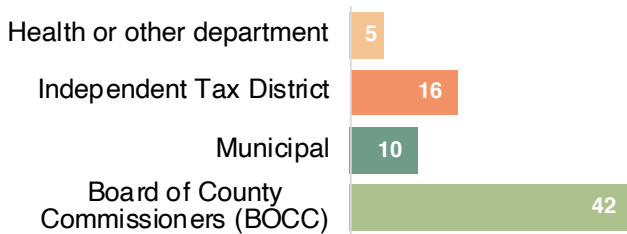
A cross-sectional survey was distributed to 63 state-approved and 27 open programs (n=90) using Qualtrics Survey Software™, and responses were collected between June and July during a time when Florida was in Phase One of the state's re-opening plan and many counties were entering Phase Two<sup>3</sup>.



A total of 77 mosquito control programs completed the survey for an **85.6% response rate**.

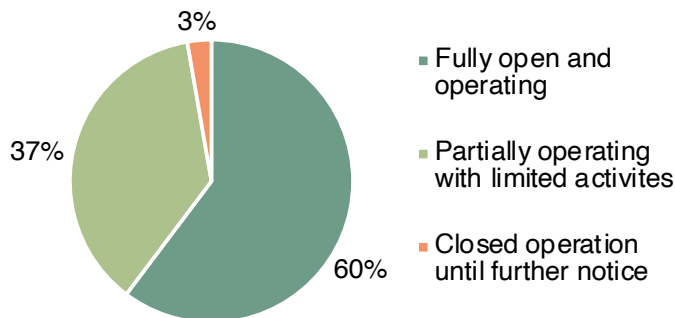
## Mosquito District Characteristics

Respondents represent mosquito control programs from different organizational structures



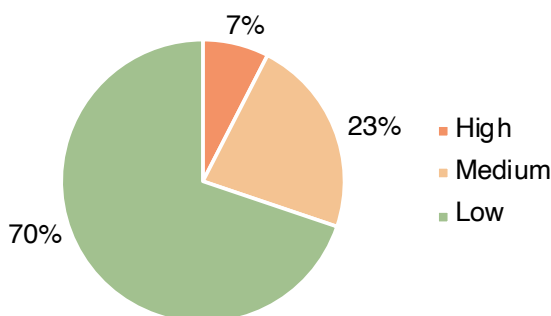
While most sectors were closed, 97% of responding mosquito control programs remained in operation during COVID-19.

Most mosquito control programs remained in operation during COVID-19



As mosquito programs enter peak season, 93% of programs report a low to medium impact of COVID-19 on programs. A lack of impact may be attributed to Florida mosquito control programs' ongoing operations with permanent personnel as well as research projects on mosquitoes and mosquito-borne disease that have been implemented over the years<sup>4</sup>. These factors combined may uniquely equip Florida mosquito control programs to deal with the challenges of maintaining control activities during a pandemic.

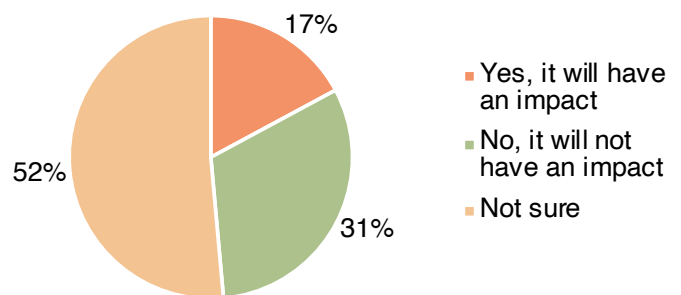
Most mosquito control programs report low impact of COVID-19 on activities



## Program Budget

When asked if COVID-19 will impact their fiscal year 2020-2021 planning budget, 31% of programs said there would be no impact and half (52%) of the programs were not sure. This finding underscores the uncertainty of mosquito control programs moving forward as the state and counties recover economically from the COVID-19 pandemic.

Most programs report being unsure of the impact of COVID-19 on their budget for FY 2020-2021

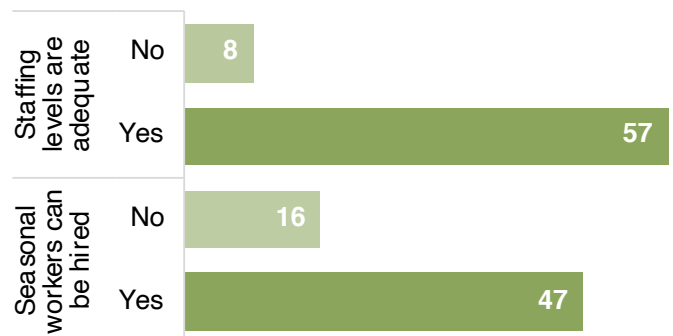


## Staffing Levels

As unemployment rises in the United States, it appears Florida mosquito control programs have not had to dismiss workers. 98.5% of programs (N=70) report they have not had to dismiss any workers during COVID-19.

87.7% of programs report that staffing levels are adequate, and 74.6% report that not being able to hire seasonal workers or interns has not posed a challenge during the COVID-19 pandemic.

Most programs report staffing levels are adequate and seasonal workers can be hired

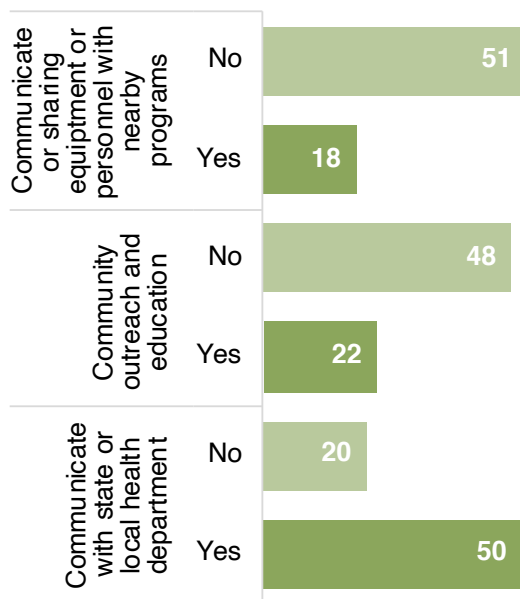


## Engagement

While 71.4% of programs report communicating with state or local public health departments, 68.6% did not carry out community outreach and education and 73.9% did not communicate or share equipment or personnel with nearby programs during COVID-19. This highlights an area of potential improvement during pandemics.

Some programs have adapted to continue providing community education services by educating over the phone, communicating through new articles and press releases, and using social media and web pages to spread information.

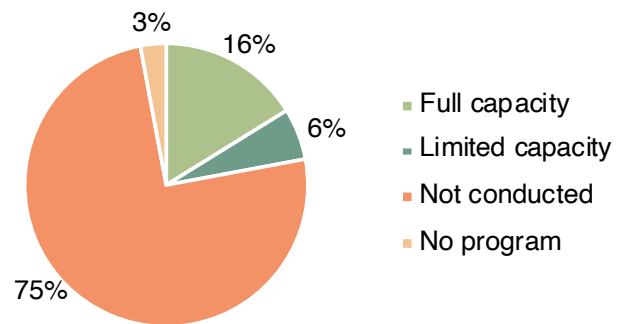
The majority of responding programs communicate with health departments, but most community and inter-program communication has been suspended



## Mosquito Program Capabilities

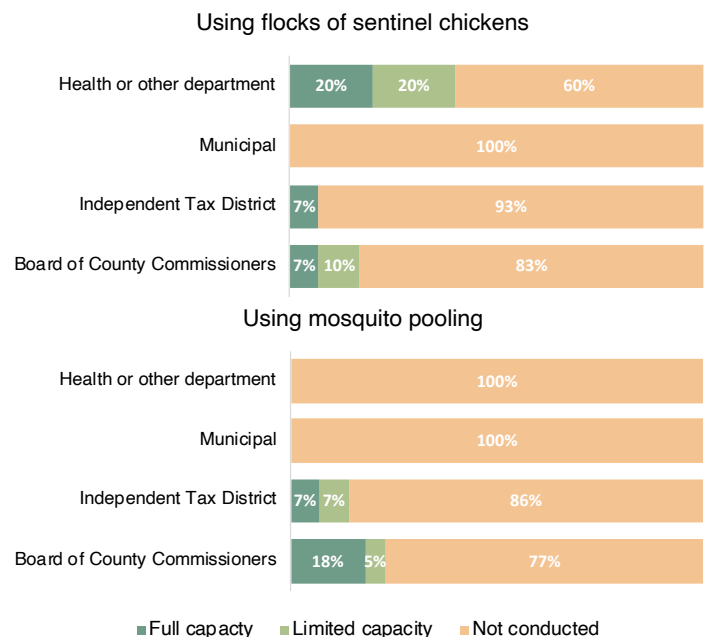
Our study found 75% of programs did not conduct pesticide resistance testing during COVID-19. In 2017, the National Association of County and City Health Officials found that 98% of vector control program's pesticide resistance testing program needed improvement across the country<sup>5</sup>. It appears that pesticide resistance testing is an area that continues to need improvement.

## Most programs did not conduct pesticide resistance testing during COVID-19



85.5% of programs did not use flocks of sentinel chickens and 83.8% of programs did not use mosquito pooling as arbovirus surveillance during COVID-19. It seems possible that these results are due to the redirection of the state health laboratory in Tampa to COVID-19 response and similarities of testing supplies needed for COVID-19 and arbovirus testing.

## Most programs did not use flocks of sentinel chickens or mosquito pooling as arbovirus surveillance during COVID-19



## Recommendations

Laboratory testing of mosquito pools and testing of human and non-human specimens such as sentinel chickens for arboviruses is needed during pandemics. Laboratory resources and capacities should be increased to ensure labs are capable of handling routine samples and the influx of samples when outbreaks and pandemics occur.

Pesticide resistance testing continues to be an area of needed improvement for mosquito control programs. Efforts should be made toward developing more robust pesticide resistance testing activities.

Communicating or sharing equipment or personnel with nearby programs and outreach and community education should be improved upon. Virtual and innovative solutions should be explored so distance communication can occur in situations such as pandemics.

Maintaining the budget of mosquito control programs should be a priority especially during pandemics. These programs are critical in preventing arbovirus outbreaks which would cause a strain on resources during epidemics and pandemics.

### Acknowledgements

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### References

1. NACCHO, The National Connection for Local Public Health. (2020, May 4). Report from the Field: The Impact of COVID-19 on Local Vector Control Activities [Press release]. Retrieved July 6, 2020, from <https://www.naccho.org/blog/articles/the-impact-of-covid-19-on-local-vector-control-response>
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5. NACCHO (2017) Mosquito Control Capabilities in the US (Rep). Retrieved July 16, 2020, from National Association of County and City Health Officials website: <https://www.naccho.org/uploads/downloadable-resources/Mosquito-control-in-the-U.S.-Report.pdf>

## GEOGRAPHY AND INEQUALITIES LAB (GaIL)

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