



## MORE THAN SPRAYING

*Matt Smith, mosquito manager for Sarasota County, holds one of the county's sentinel chickens. All photos by Roger Drouin*

### WITH PEAK MOSQUITO SEASON UNDER WAY, THE COUNTY'S MOSQUITO MANAGER USES A VARIETY OF APPROACHES TO DEAL WITH THE REGULAR TINY BITERS AND MONITOR FOR THE POTENTIALLY DANGEROUS ONES

By Roger Drouin  
County Editor

Matt Smith, mosquito manager for Sarasota County, holds a chicken named Mellow Yellow. Mellow Yellow, however, has not been living up to his name on this particular morning. He has been acting a little unruly with his fellow fowl in one of the county's 13 sentinel chicken flocks.

Finally, he settles down in Smith's arms.

Mellow Yellow really has no reason to be tense, even though he has an important job.

He and the other sentinel chickens are used to detect for mosquito-borne diseases such as West Nile Virus, St. Louis Encephalitis and Eastern Equine Encephalitis. Each county flock has five to eight chickens, and those flocks are spread out among sites near schools, wastewater plants, swamps and parks — typical mosquito breeding grounds.

*“We want to do what we can to make sure what we are doing [to control mosquitos] is not harming the environment.”*

Matt Smith  
Mosquito Manager  
Sarasota County

wastewater plants, swamps and parks — typical mosquito breeding grounds.

“The viruses do not hurt the chickens,” Smith said. Their immune systems

generate antibodies to fight the infections. If antibodies show up in routine testing, health officials can warn residents to avoid mosquitoes, and mosquito control units can better focus their efforts on the areas near the locations of the affected birds.

The technique is not new. Sarasota County, along with other counties in Florida, has been using it for more than 30 years.

This is the middle of peak season for mosquitoes — which runs from May to October — and the sentinel chickens are just one of the approaches used to keep the insects, and the diseases they can carry, in check.

The county is also implementing cutting-edge technology to combat mosquitoes, such as a device that uses ultrasonic sound (18 to 30 KHz) to kill mosquito larvae without the use of chemicals.

The device costs around \$7,000, and it is part of Smith's effort to make Sarasota County's mosquito management "as environmentally friendly as possible."

Smith showed a *Sarasota News Leader* reporter Wednesday morning, July 30, how the device worked, turning it on and dipping it into the creek behind his office. Fish appeared to swim round it unaffected.



*The ultrasonic device costs around \$7,000, and it is part of Smith's effort to make mosquito management 'as environmentally friendly as possible.'*

Typically, after heavy rains, mosquito swarms can be detected in ditches. In the past, workers had to spray a chemical into the water every week to keep the insects at bay. But now those county employees can use this device to kill larvae before it grows to the adult stage.

In the long term, Smith also hopes using the electric device will prove more cost-efficient than the chemicals.

### MONITORING FOR CHIKUNGUNYA

This rainy season, there is concern about chikungunya, a virus that emerged in Africa. Over the past couple of years, it has spread across the Caribbean, and it is [poised to make its incursion into the continental United States](#).

Only two cases of the virus are believed to have been contracted through mosquito bites in the U.S. Both were reported in southeast Florida.

Smith said the two species of mosquito that carry chikungunya are found locally but in very small populations. The yellow fever mosquito, *aedes aegypti*, and the tiger mosquito, *aedes albopictus*, are capable of transmitting both the dengue and chikungunya viruses. These mosquitoes, which bite during the daytime, are associated with the accumulation of water in man-made containers, such as tires and buckets, which serve as breeding sites.

One Sarasota resident, who lives close to downtown, is believed to have contracted the virus while traveling out of the country. The virus can be transmitted by mosquitoes



Matt Smith points to a map showing various mosquito control areas in the county.

after they have bitten someone with the infection. Therefore, county workers set up traps near the resident's home to see if any mosquitos in that area had the virus. The tests were negative. Mosquito control technicians also walked through the neighborhood to tell residents to drain any standing water, where mosquito larvae could develop.

There have been no reports of anyone acquiring chikungunya in Sarasota County, but Smith said the county is ready to respond to the potential threat of the virus.

Health Department staff suggests residents follow [simple tips](#) to protect themselves from mosquitoes and the diseases they carry:

- Drain any standing water to stop mosquitoes from multiplying. Check around your home to rid the area of standing water,

including containers that hold water where mosquitoes can lay their eggs.

- Flush bromeliad plants with fresh water or use a larvicide (e.g., BTI granules) in the "tank" of the bromeliad to limit mosquito development.
- Cover skin with clothing or repellent. Apply mosquito repellent to bare skin and clothing. Always use repellents according to the label. Repellents with picaridin, DEET, oil of lemon eucalyptus and IR3535 are effective. Use mosquito netting to protect children younger than two months.
- Cover doors and windows with screens to keep mosquitoes out of your residence. Since mosquitoes can bite any time you are outdoors, always be cautious.



*The native mosquito fish, gambusia, is already present in most healthy ponds, lakes and canals. These fish provide excellent biological control for mosquitoes in aquatic stages.*

- When possible, stay in facilities with screened windows and doors, as well as air conditioning, to reduce risk of mosquito bites.
- When you are outdoors and mosquitoes are present, wear clothing such as shoes, socks, long pants and a long-sleeved shirt to cover most of your skin. Infants should be kept indoors or mosquito netting should be used over carriers when mosquitoes are present.

## BEYOND SPRAYING

Smith worked as lead supervisor for the Coachella Valley Mosquito Control District in California and as an entomologist for the Mobile County Health Department in Alabama before he came to Sarasota County in 2013. When he tells people he works for mosquito

management, people usually say, “Oh you’re the guys that spray from trucks.”

“We do that, but there is so much more to what we do,” Smith pointed out to the *News Leader*.

Mosquito control biologists and technicians engage in a lot of monitoring, along with a lot of community outreach.

If a resident calls to report a lot of the annoying biters in a location, a technician will often advise the resident about how to reduce the insect population, and then the technician will set up a trap that uses carbon dioxide to attract mosquitoes.

In-house lab technicians and biologists will count the different species of mosquitoes caught in the trap and test for viruses.



*At the county's mosquito control facility, lab technicians count the different species of mosquitoes and test for viruses.*

“We catch them in the field and test them in here,” explained biologist Calvin Hancock in his county office.

Hancock showed the *News Leader* a sample of how a positive test for West Nile would be indicated in genetic imaging of the mosquitoes.

Smith is also embarking on figuratively new terrain uncommon to many mosquito management agencies. He is implementing a program to test creeks and rivers to see if the use of pesticides is having an impact on water quality.

“We want to do what we can to make sure what we are doing [to control mosquitoes] is not harming the environment,” Smith said.

This week, a biologist at the county’s mosquito lab was calibrating new equipment that will

be used in the field to test water quality. The U.S. Geological Survey (USGC) has agreed to partner with the county on the project and fund 49 percent of the costs, Smith noted.

Biologists are also working on an initiative to breed the native mosquito fish, *gambusia*, on-site. The fish can then be given to residents, who can put them in newly dug ponds, livestock tanks or rain barrels.

In 2012, the Sarasota County commissioners voted to increase the tax rate for mosquito control for the first time since 2003. It was a testament to the importance of the activities.

One goal for Smith is to build up a healthy reserve fund within his budget so if a hurricane strikes the area and leaves a lot of standing water, he will have the necessary money to ramp up efforts to ensure mosquitoes are monitored and controlled. 

