



JEFFERSON PARISH ANNUAL REPORT 2023

The following is a report to the Jefferson Parish council on its mosquito control program for the period of January through December 2023. A detailed report of the yearly activities follows this narrative.

A rather normal winter combined with insignificant climatic conditions in the months following provided for a low activity spring insect population in 2023. Throughout the summer and early fall, mosquito numbers as a whole were lower than anticipated due to the drought of 2023, leading to elevated levels of vector mosquito species later in the season. Abatement efforts were increased to combat the surge in the pest mosquito population. Virus causing species were continuously monitored in encephalitis surveillance traps and known breeding sites. Inspectors applied larviciding pressure to the areas to keep numbers suppressed. The adulticide program benefited from stable weather conditions in the beginning of the year. Towards the end of the season it was a challenge to get high mosquito activity areas sprayed due to low temperatures and high winds.

LARVICIDING

One of the most critical parts of any mosquito control program is larviciding. Large amounts of larviciding are performed off road and goes unnoticed by parish residents. Most larviciding treatments were applied with “natural” products with little or no effect on non-target species. Another “natural” abatement of mosquito larvae is the relocation into known breeding sites of the native mosquito fish (*Gambusia affinis*). These top-feeding fish can consume more than 250 larvae a day and are a good means of extended control. Breeding sites found to be active with pupae, the final stage of immature mosquito development, were treated with surface films.

Each larviciding method mentioned has a different mode of action and several of them work by attacking different stages of larval development. Following rain events experienced during an active Hurricane season crews focused efforts on woodland sites, open fields and ditches. During periods of low precipitation inspectors concentrated their control measures on known vector-mosquito breeding sites such as septic ditches and drains.

During the 2023 season, inspectors treated more than 41 million square feet of surface water to reduce the emergence of pests and disease carrying adult mosquitoes.

ADULTICIDING

Ground and aerial adulticiding is the control of adult mosquitoes using truck mounted, handheld, ATV mounted or aerial sprayers. During the 2023 season, adult mosquitoes trapped were noticeably higher than the previous year. Periodic increases in adult populations were experienced after late season rainfalls and typical hatch offs. Several adulticiding methods and increased control efforts were initiated to bring the mosquito population down to acceptable levels.

Truck-mounted sprayers are the part of the program with which residents are most familiar. Being only one of our integrated pest management program control measures, it is the one with the most visible results. These sprayers are effective in controlling adult mosquitoes accessible by roadways. This year truck sprayers treated more than 635,000 acres and covered 17 thousand linear miles of road.

Twin engine aircraft added additional control to adult mosquito populations. More than 44,000 acres were treated to aid in combating large mosquito hatches.

ENCEPHALITIS SURVEILLANCE

During the 2023 season, gravid adult mosquitoes used as indicators of encephalitis activity. Adult mosquitoes that had already taken a blood meal were also collected each week from January through December. These mosquitoes were also sent to the LSU Laboratory and tested for several types of encephalitis. Any encephalitis follow-up mosquito samples were retained and tested in our laboratory for quicker results. Upon receipt of any positive results, the control measures outlined in the expanded virus protocol were initiated.

This year, as in the past, West Nile Virus Encephalitis (WNV) was the most common type found in the United States. Human cases were lower across the country and Louisiana mimicked those numbers. The nation saw 2,328 cases in humans resulting in 227 deaths. In Louisiana there were 51 human cases that occurred and 5 of them resulted in fatalities. Unfortunately, Jefferson Parish did see 1 human West Nile case. Encephalitis presence was observed thru our surveillance program with 23 mosquito samples returning positive. Upon receipt of any positive results our virus protocol was initiated.

EXPERIMENTAL PROGRAMS

Testing of the effectiveness of chemicals or efficacy testing was performed on the mosquito control products used during the spray season. Caged mosquitoes were subjected to adulticides in operational conditions in order to test the effectiveness of aerial and truck applied products. Larval chemicals were tested in the field at label rates with pre and post counts defining control. Individual tests were performed on the control products at varying rates. Ten of these experiments were performed using mosquitoes caught and reared in our lab. All operational rates were tested and achieved favorable results. Other experiments were performed to test the killing ability of a pesticide over time. These bottle bioassay or resistance tests were performed on our mosquito adulticide products. Adult mosquitoes were introduced into a pesticide-coated bottle

and observed over specific time intervals until all mosquitoes had died. A graph of mortality was produced for each adulticide tested. These graphs were again compared to the graphs of past years to determine if local mosquitoes have gained tolerance to the insecticides in our mosquito control arsenal. To date, these comparisons have not indicated any significant tolerance to any of the chemicals tested.

PUBLIC EDUCATION

It is the goal of our public education program to help parish residents identify and eliminate breeding sites in their own backyards. Every one of our staff members takes an active role in the education of the parish residents. Our crews further spread the message by using door-to-door distribution of pamphlets during virus events to personalize education.

Sincerely,

Sam Stines

Sam Stines
Regional Director

ms/ss