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JEFFERSON PARISH
ANNUAL REPORT
2022

The following is a report to the Jefferson Parish council on its mosquito control program for the period of January through December 2022. 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 mild spring insect population in 2022. Throughout the summer and early fall, mosquito numbers as a whole were normal. A year that saw a reprieve from tropical weather and higher than normal rainfall associated with systems, reduced the number of breeding sites within the parish. 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 adulticiding program benefited from stable weather conditions throughout the year to complete nighttime \spray assignments.

LARVICIDING

One of the most critical parts of any mosquito control program is larviciding. Large amounts of larviciding is 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, 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 2022 season, inspectors treated more than 45,000,000 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 2022 season, adult mosquitoes trapped were considerably lower than the previous year. Periodic increases in adult populations were experienced after rainfalls and typical fall hatch off. 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 563,000 acres and covered 15,485 linear miles of road.

Twin engine aircraft added additional control to adult mosquito populations. Nearly 43,000 acres were treated to aid in combating large mosquito hatches.

ENCEPHALITIS SURVEILLANCE

During the 2022 season, surveillance methods of gravid trapped adult mosquitoes and CDC trapped adult mosquitoes were again 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 1,035 cases in humans resulting in 79 deaths. In Louisiana there were 47 human cases that occurred and 6 of them resulted in fatalities. Encephalitis presence was observed through our surveillance program with 15 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 in Jefferson Parish 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 education coordinator reaches out to schools and civic associations to present our education program in person.

Our crews further spread the message by using door-to-door distribution of pamphlets during virus events to personalize education.

Sincerely,

Sam Stines
Biologist
Regional Director