

## **Mosquito Control: Three generations of mosquito warriors have changed weapons**

By **JEFFREY STIVERS**, special to the Daily News  
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To the average citizen mosquito control is mosquito control, same old, same old. To someone such as myself, who is a third-generation mosquito control professional, the changes in mosquito control knowledge and techniques have been dramatic over the last 50 or 60 years.

Mosquito control is, essentially, an environmentally oriented operation. It deals with a biological organism (mosquitoes) and attempts to modify that organism's environment to reduce contact between the organism and man.

As mosquito control professionals learn more about mosquitoes and the environments they inhabit, new control strategies are developed to improve the effectiveness of mosquito control operations and reduce unwanted environmental impacts.

Grandpa Stivers spent much of his working life with the Essex County, N.J., mosquito control agency, eventually becoming the assistant superintendent. Because effective insecticides were not available early in his career, the major method of mosquito control for him was to drain salt marshes. This method dates back at least as far as the ancient Romans, and is quite effective at controlling mosquito production.

Digging drainage ditches through salt marshes to drain any and all standing water, building dikes to impound water so that it was too deep for mosquitoes, installing tide gates to promote flood and drain sequences in marshes were all part of the inventory of mosquito control techniques for him.

Unfortunately, these methods, as practiced in the 1930's, 40's and 50's, frequently had a negative impact on the salt marsh environment. As the importance of the salt marsh/wetlands environment in filtering water-borne contaminants and as nurseries for aquatic organisms became known, these techniques were abandoned or highly modified and regulated. While drainage ditches, dikes, impoundments, and tide gates are still part of the mosquito control arsenal, they are used very differently and with minimal negative impact.

Grandpa's methods, while acceptable for the level of understanding of the environment during his era, are simply no longer suitable. Remember, however, that during Grandpa's time malaria and yellow fever were still important diseases throughout the U.S. Much of what was called mosquito control back then was really disease control, and protecting the public from mosquito-borne diseases was the overriding concern, not the environment.

Dad, while he still had to be concerned with preventing mosquito-borne diseases, was able to focus his efforts more toward improving the quality of life of the residents of Merced County, Calif., where he was the district manager. Drainage was still a major part of his mosquito control operations, but he was also an innovator in the use of aircraft for mosquito control in the 1950's. Insecticides such as DDT and parathion were newly available and were widely used to control mosquito adults and larvae.

Aircraft were used to apply insecticides to mosquito breeding areas and DDT was used, mixed in diesel fuel, as a thermal fog to control adults. Remember riding your bike behind the fog truck as it drove down your street on a warm summer evening? That was probably a DDT fog you were pedaling through.

DDT and parathion are gone from the mosquito control arsenal because of their potential to have a negative impact on the environment. Again, increased knowledge of our environment led to changes in the methods used by mosquito control personnel.

In the third generation (mine) massive drainage projects to eliminate breeding sites are not a generally accepted control method. DDT and other chemicals with long residuals have disappeared from the mosquito control warehouse, to be replaced by products that break down quickly in the environment. Application equipment is better and more efficient, reducing the amount of insecticide needed for adult control from several pounds per acre to just a few ounces. Chemical larvicides are being replaced with biologically derived or oriented products that harm nothing but mosquito larvae.

As environmental knowledge has increased, mosquito control techniques have changed also. This has been true throughout the history of mosquito control, and will continue to be true in the future.

Oh, the fourth generation of Stivers in mosquito control? There won't be one. Both of my children have proven to be smarter than their paternal ancestors and have gotten real jobs — or at least jobs that don't include feeding thousands of mosquitoes with their own blood as part of the job description.



*Jeffrey C. Stivers, Ph.D. is director of research for Collier Mosquito Control District. Contact him at [JStivers@collier-mosquito.org](mailto:JStivers@collier-mosquito.org) or by phone at 436-1000.*