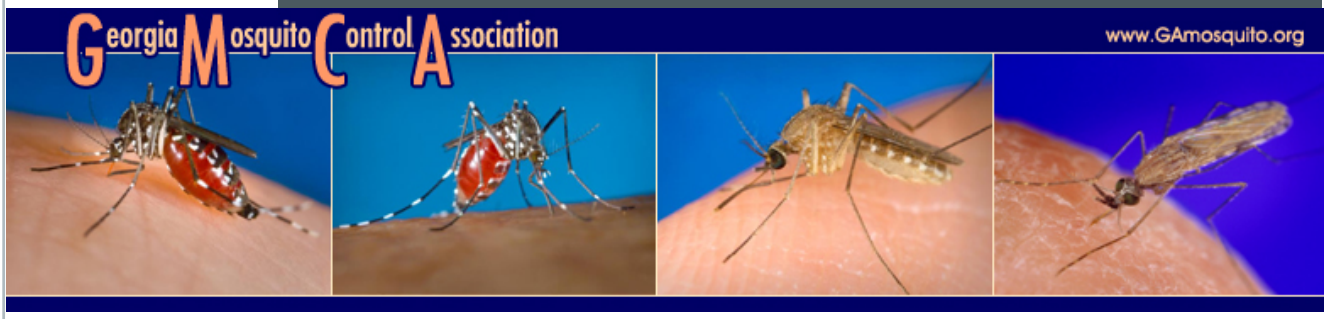
Georgia Mosquito Control Association November 13, 2015 Volume 6, Issue 2

DIDEEBYCHA



The GMCA Newsletter - DIDEEBYCHA - is a means of spotlighting various programs throughout Georgia, as well as a way of providing the membership with information about topics of interest to mosquito control.

WNV SURVEILLANCE IN GEORGIA, 2001-2009

In response to the emergence of West Nile virus (WNV) in the northeastern United States in 1999, the Centers for Disease Control and Prevention (CDC) coordinated and funded a proactive surveillance system to detect the potential expansion of the virus in the US. Georgia's close proximity to affected states along with its temperate climate and position along bird migration routes established it as a priority state to receive funding to implement WNV surveillance in 2000.

West Nile Virus surveillance was initiated in two counties (Chatham and Fulton) in August, 2001 following the detection of WNV infected mosquitoes in Lowndes County in July, 2001. By 2009, some level of arboviral surveillance had been conducted in 97 of 159 counties (61%). Mosquito data were analyzed to determine which species are involved in the transmission of WNV and other arboviruses in Georgia, their relative abundances, and the WNV minimum infection rates (MIR) in mosquitoes at various locations and how this relates to human infection.

Continued on page 4…

AMCA Meeting

THE 82nd ANNUAL CONFERENCE OF THE AMERICAN MOSQUITO CONTROL ASSOCIATION WILL BE HELD IN SAVANNAH GA ON FEBRUARY 7-11, 2016.

Page 2

Rethinking "efficacy" of vector control

Vector control is preventative, like vaccine delivery, and also reactive to outbreaks. As a reactive measure, it must be rapid. But as a preventative strategy, we need to rethink what "efficacy" means...

Page 3

Program Spotlight

Public Health Entomology is focused upon insects and arthropods that impact human health...

Page 6

AMCA Meeting

The American Mosquito Control Association, founded in 1935, is a scientific/educational, not-for-profit public service association operating under the corporation laws of the state of New Jersey. It is world-wide in scope, with members or subscribers to its publications in over 50 countries. The majority of its members are in the United States. Under its bylaws, only individuals can be "regular" members, and much of its activity is performed by volunteers, approximately 150 of these serving on Committees. It is an "open" association and anyone may join. The Board of Directors is composed of five officers, nine regional directors and an industry director, all elected by the membership.

AMCA is not governmental nor is it subject to political control, but its services are provided mainly to public agencies and their principal staff members engaged in mosquito control, mosquito research and related activities. However, services are equally available to any agency, company or individual that may request any information or services that AMCA can provide.

The AMCA Annual Meeting is the premier education and networking event for researchers, educators, vector control professionals, industry representatives, and students in mosquito control. Every year since 1935, hundreds gather to hear the latest research, share ideas, and form collaborations.

THE FINAL PROGRAM WILL BE AVAILABLE IN DECEMBER 2015.

The Georgia Mosquito Control Association is the local host for the 2016 AMCA meeting. Volunteers are needed to help with the meeting, and the GMCA may have up to 20 complimentary registrants in return for volunteer services. If anyone is interested in volunteering to assist at the meeting, please contact Rosmarie Kelly at Rosmarie.Kelly@dph.ga.gov.

Additional information about the AMCA meeting can be found at http://www.mosquito.org/index.php?option=com_content&view=article&catid=19%3Asite-content&id=110%3Aamca-annual-meeting-home&Itemid=125.

Rethinking "efficacy" of vector control

Oct 23, 2015
Rajeev Vaidyanathan

Scientists developing new vector control technologies envision what the final product will be, how much it will cost, its stability at different temperatures, and a dozen more parameters. Moreover, when launching products with new chemistries, we evaluate their effect on nontarget organisms, and we work closely with regulatory agencies that have not encountered these active agents before. In the process, we discover that some new molecules might not kill mosquitoes in 24 hours. They might knock adults down, but they might still be alive. Or they might interfere with blood meal digestion and ovarian development, which means a female might still take a blood meal but will lay fewer eggs. Or they might interfere with digestion in larvae, which continue to grow but don't pupate. These new modes of action don't target ion channels or neurotransmitters and are, therefore, powerful tools in resistance management. But they demand a fundamental reconsideration of the word "efficacy," which for most still means "mortality."

While there is a desperate need for new modes of action and reduced toxicity to nontarget organisms, the world is accustomed to spraying with immediate results. These Venn diagrams might not overlap fully, and I would argue that we can reconcile these needs if we include sublethal effects under "efficacy." A mosquito that has lost its legs is vulnerable to predation. A mosquito with impaired olfaction might not die, but it won't blood feed either. Because mosquitoes in the field are nutritionally stressed, the inability to obtain carbohydrates for two days could be fatal.

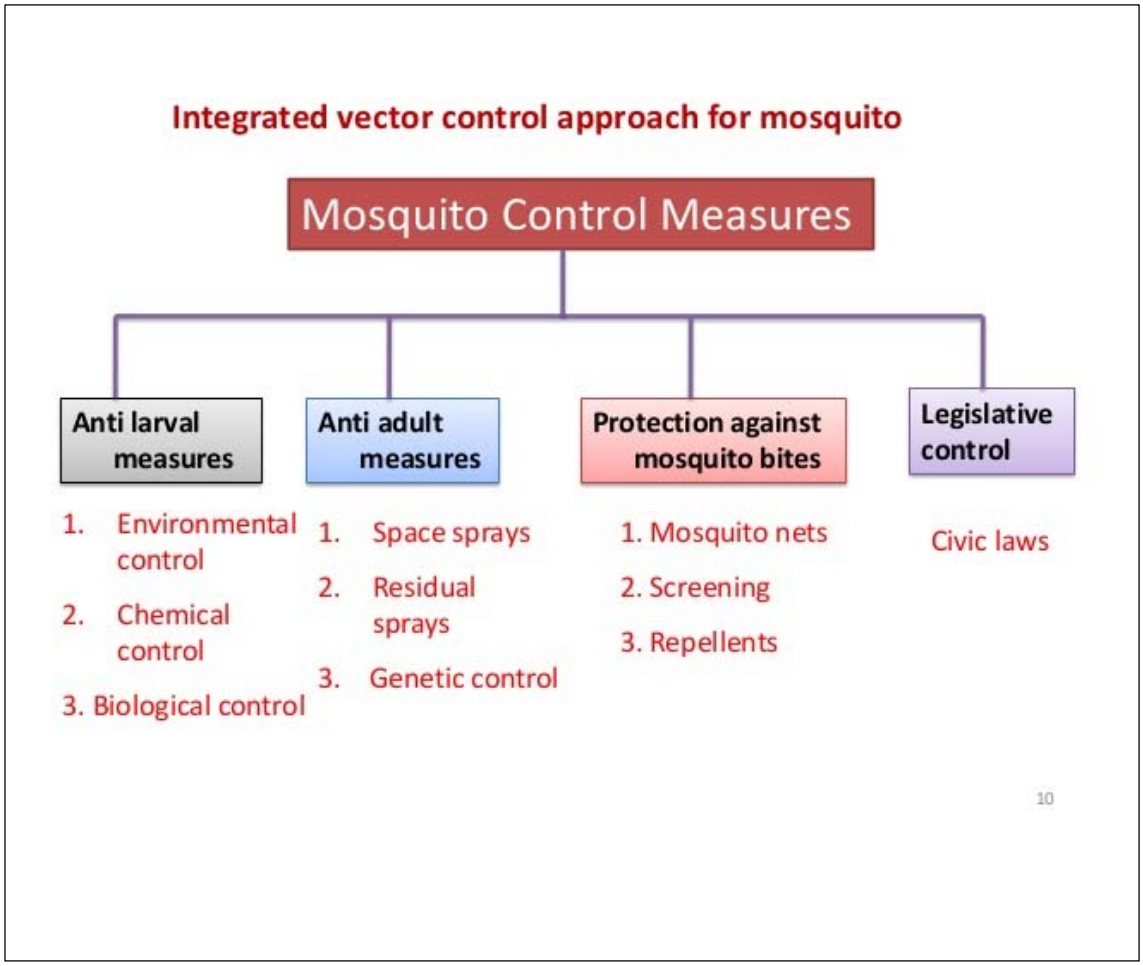
Traditionally, delays in mortality have been unacceptable, but we have faced this challenge before. When insect growth regulators (IGR) came on the market, it was a hard sell. Instead of seeing larvae go belly-up, district managers and operational staff had to explain to their tax-paying constituents that the larvae were going to persist for a week, but they wouldn't emerge as adults. It took years of education and outreach, trap-catch data from treated and untreated sites, and an understanding of the environmental benefits of IGRs for them to gain acceptance. Today, IGRs are part of our larvicidal toolbox.

The future of vector control will involve similarly managing public perception. In agricultural entomology the term *economic injury level* refers to the population density of a pest at which the cost to control the pest is equal to the amount of damage. The concept is more easily quantified in agriculture than in vector control. If you were to ask, "What population density of mosquitoes is unacceptable," the answer would probably be "one." This zero tolerance attitude could be managed by educating the public that, as long as mosquitoes are not biting, products still work. They just work differently.

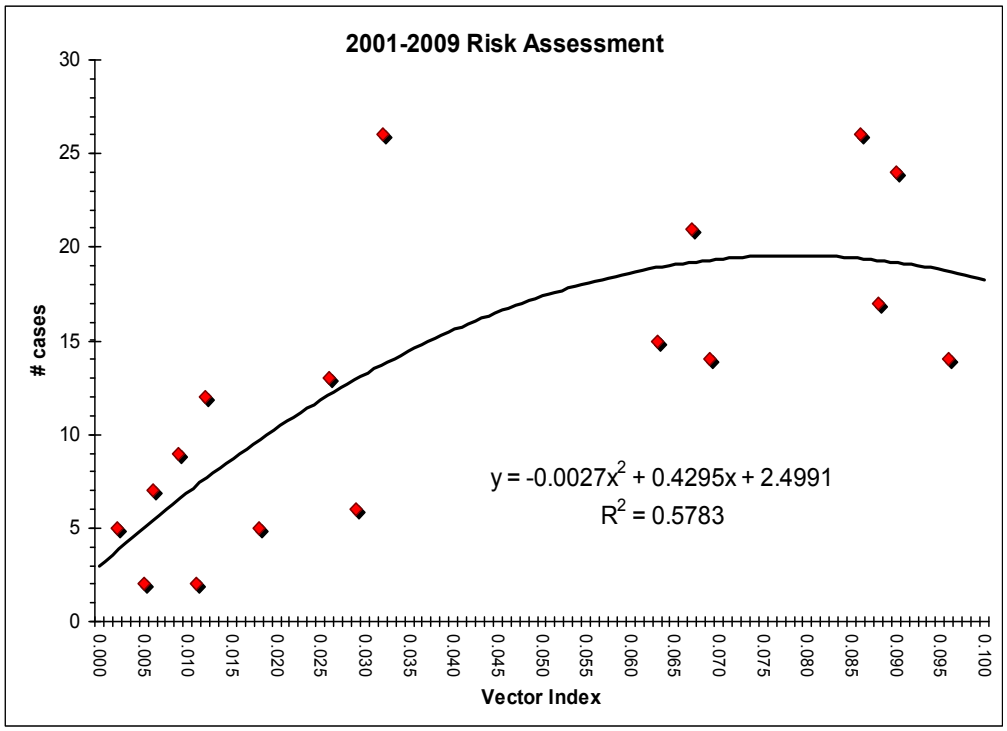
Rethinking "efficacy" of vector control (cont)

Vector control is preventative, like vaccine delivery, and also reactive to outbreaks. As a reactive measure, it must be rapid. But as a preventative strategy, we need to rethink what "efficacy" means - for ourselves, health agencies, district managers, and the public. If new chemistries keep mosquitoes out of your backyard, confuse their sense of smell, interfere with their reproduction, and inhibit their larval development, then they are efficacious.

Taken from: https://www.linkedin.com/pulse/rethinking-efficacy-vector-control-rajeev-vaidyanathan?trkSplashRedir=true&forceNoSplash=true



WNV SURVEILLANCE IN GEORGIA, 2001-2009 (cont)



The West Nile virus vector index was calculated for *Culex quinquefasiatus* by week for all 9 years of surveillance and plotted against the number of human cases per week (onset date). There was a positive correlation between the vector index and the number of human cases reported.

WNV+ Species, July-Oct, 2001-2009

Species	Total Collected	# pools	# WNV positive Pools	MLE	95% Lower CI	95% Upper CI
Ae albopictus	24746	3313	4	0.162	0.05239	0.38769
Ae vexans	10348	1181	1	0.097	0.00554	0.46697
Aedes/Ochlerotatus spp	1073	208	1	0.936	0.05357	4.54288
Culex spp	65559	5244	85	1.310	1.05355	1.61129
Culex spp (male)	2617	367	1	0.382	0.02193	1.85227
Cx nigripalpus	39909	2886	1	0.025	0.00144	0.12118
Cx quinquefasciatus	299136	20178	544	1.851	1.70036	2.01117
Cx restuans	3768	662	3	0.796	0.20943	2.14564
Cx salinarius	7717	906	2	0.259	0.04626	0.84790
Oc triseriatus	3090	1265	2	0.647	0.11545	2.11085

PROGRAM SPOTLIGHT

Public Health Entomologist

Georgia Department of Public Health

A Public Health Entomologist identifies and maintains surveillance of pests, disease vectors and other animals of public health importance, and recommends procedures to ensure minimal environmental impact from pest control operations.

The entomologists' duties include: working with District and local health departments to develop mosquito surveillance and control systems by providing technical assistance, training, and oversight to local public health agencies, working with epidemiologists and environmental health specialists to refine state programs for surveillance and control of vector-borne pathogens, including West Nile Virus, conducting in-service training programs on mosquito surveillance and control for local public health staff, working with federal, state, and public health agencies to obtain and disseminate accurate information about the epidemiology and control of vector-borne diseases, adapting and developing educational materials and presentations for the public about and how to prevent vector-borne diseases, and responding to public inquiries about vector-borne diseases. In addition, the entomologist provides support and information for all insect and other arthropod-related nuisance issues.

Duties related to emergency preparedness include providing support and helping coordinate environmental health resources to address vector mosquito control issues by:

- Developing disease specific emergency response plan for vector control including; insect, arthropod and rodent vectors.
- Compiling and reviewing existing emergency vector control guidelines to include surveillance and control of insect, arthropod and rodent vectors.
- Developing new emergency vector control guidelines where none currently exist that include surveillance and control of insect, arthropod and rodent vectors.
- Maintaining the Emergency Mosquito Surveillance trailer and providing support during emergencies where mosquito populations become a problem to recovery efforts.
- Assist in compiling vector data to help in developing baselines for monitoring purposefully released vector-borne biologicals.

MAMCA, 2016

The Mid-Atlantic Mosquito Control Association is a non-profit, professional organization founded in 1975. The membership consists primarily of local, state, and federal government officials; industry, and research/academic members from the nine member states of Delaware, Georgia, Maryland, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia.

MARK YOUR CALENDARS: The 2016 Mid-Atlantic Mosquito Control Association (http://www.mamca.org/) meeting will be held in Nashville, TN on March 30-April 1.

The Georgia Mosquito Control Association

GMCA
c/o David Touwsma
433 Bishop Street
Atlanta, GA 30318

www.GAmosquito.org