



Skeeter Scanner

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President's Message

The mosquito season is in full swing, the spring mosquitoes are giving their last ditch effort before the end. The summer cattail mosquitoes are out just in time for the Fourth of July holiday, and of course with summer rains our nuisance *Aedes vexans*. This is also the time of year that *Culex pipiens* populations build and the threat of arbovirus begins - so check those catch basins. As we approach Michigan's mosquito mid-season, control programs are busy, but it can always be worse.



The MMCA board has also been active seeking opportunities to promote mosquito control in Michigan. The MMCA with the help of volunteers, has accomplished the following:

- The MMCA was represented by Randy Knepper at the Urban IPM/Public Health Course sponsored by the Michigan Department of Agriculture (MDA) & Environmental Protection Agency (EPA). Randy's presentation was on Comprehensive Mosquito Management.
- Margaret Breasbois manned the MMCA booth and shared the importance of Mosquito Control with kids and their parents at the MDA's annual Earth Day event. Over 3,500 in attendance.
- The MMCA attended and displayed at the Michigan Pest Control Association's annual meeting. It was nice to share information and to gain insight on issues that both Associations share.
- The MMCA held its annual mosquito identification workshop, which was well attended by district staff, college students, PCOs, and public health professionals.
- The MMCA has joined the Michigan Association of Counties, as an affiliate member. This opens opportunities to submit articles to their monthly newsletter, and to speak at various MAC meetings.
- The MMCA Board formed an ad-hoc NPDES Committee chaired by Dr. Tom Wilmot to keep membership abreast of on the ongoing NDPEs proceedings, and to be proactive in resulting changes to the mosquito control industry.

Volunteers are needed and appreciated. Opportunities to exhibit and speak often present themselves with very little notice or they occur in concert with other engagements. It is important to have a large pool of volunteers from which to draw. Not all engagements are for everyone, but there may be some events that suit certain volunteers. Manpower is needed for displays, speaking engagements, annual meetings, and committees. If you are interested in Volunteering your time or expertise, please contact me (see inset box p.8). And as always if you know of an event in which the MMCA can promote, educate, or help promote mosquito control please contact us.

Lastly, planning for the 2010 MMCA annual meeting in Traverse City is ongoing. The meeting will take place February 2-3, 2010 at the Park Place Hotel. Conference presentations will deal with issues relevant to Michigan from basic control and surveillance to new control products. If you're interested in speaking or have an idea for a conference presentation please contact Randy Knepper, randy@scmac.org

Local Pilots Assist With Dedication

Al Schiffer and a group of mid-west pilots performed a flyover salute at the Sanford Historical Society's Fallen Veterans Memorial ceremony Saturday, May 23, 2009. Streaming red, white, and blue contrails the nine planes presented the crowd with an incredible display of precision flying. The sound of the WWII planes announced their arrival long before they were in view, as people all over town turned out to watch. The crowd cheered and applauded as the planes passed overhead and the display remains the talk of the town. The Historical Society would like to again express its gratitude to: Tom Adle, Chuck Marshall, Ralph Lutes, Ron Staley, Bob Pingston, Bruce Koch, Jim Greeson, John Feldvary, and Al Schiffer for making the tribute a truly special event.



Photo by KATE HABITLER

North Central Mosquito Control Association

Mosquito control professionals from western Ontario to Saskatchewan and in the states of Wisconsin, Minnesota, North Dakota, South Dakota and Iowa have joined together to create the North Central Mosquito Control Association. The purpose of the new Association will be: to promote the education of people working in mosquito control, vector control and/or related industries; to maintain public interest in areas where mosquitoes are now being controlled; to keep up with new developments in methods of control, surveillance, integrated pest management,

environmental safety and related fields of study; to disseminate information concerning mosquitoes and diseases they transmit to its membership and the general public through publications and meetings; and to promote mosquito control in their region whenever it is feasible.

The proposed Board of Directors includes President Todd Hanson (North Dakota), Vice President Mark Hoven (South Dakota), Treasurer Mark Smith (Minnesota), Dave Geske (Wisconsin) and Dean Solum (Industry). The next meeting of the Association is tentatively scheduled to be held in Grand Forks, ND. The NCMCA will share many of the concerns we face in Michigan so it is hoped that we will be able to work together toward our common goals. For more information, contact Mark Smith at the Metropolitan Mosquito control District.

EPA Forms Pollinator Protection Team

EPA has formed a pollinator protection team to expand the agency's inquiry into the possible causes of declines in pollinators, especially honey bee populations in the U.S. The new multidisciplinary team will address the potential risks that pesticides may contribute to what is known as colony collapse disorder.

Although the role that pesticides play in the phenomenon has not been scientifically established, the team will explore possible approaches, tools, and resources for reducing the potential risks of pesticides to pollinators. The team has also developed a strategic plan that focuses on three main goals for guiding the agency's work and direction in protecting pollinators in the years ahead:

Advancing the agency's scientific knowledge and assessment of pesticide risks to pollinators.

Improving risk management tools for mitigating potential risks to pollinators.

Increasing and broadening EPA's collaboration and communication with governmental and non-governmental organizations and the public in addressing pollinator issues.

EPA has been working on multiple fronts to protect honey bees through regulatory, voluntary, and research programs. However, since colony collapse disorder first focused attention on honey bee declines beginning in 2006, the agency has been reassessing its approach to pollinator protection.

Malaria Vaccine Could Be Available by 2011

Advanced trials of a new mosquito medicine that began in Africa last week could lead to the world's first malaria vaccine becoming available as soon as 2011.

GlaxoSmithKline (GSK) began Phase-III trials of its Mosquirix medicine on Wednesday as scientists began injecting 1,200 infants and children in the town of Bagamoyo in Tanzania.

Eventually, up to 16,000 patients will be immunised in seven African countries, including Mozambique, Kenya and Malawi.

Mosquirix, which has been tested for 17 years for its safety and effectiveness, is the first potential malaria vaccine to reach the Phase-III trial stage. About 80 percent of vaccines that enter Phase III typically end up on the market, it said.

There are treatments available for malaria once the disease has been contracted, but no vaccines.

Malaria tablets can be taken for a maximum of a few months before they become toxic for the body.

The paper said Mosquirix is designed for people living in areas where malaria is endemic and will not be available to tourists as an alternative to malaria tablets.

Earlier, more limited trials of Mosquirix in Tanzania have shown that the vaccine reduced infection with malaria over a six-month period by up to 65 percent in babies aged under 12 months, who are the most vulnerable to the disease.

Different versions of the same medicine have also proved successful in children aged between five and seventeen months in Kenya and Tanzania.

Pyrethrins Reregistration Stewardship Program

EPA completed the Reregistration Eligibility Decision (RED) for pyrethrins in 2006. During reregistration the Agency considered the potential association between pyrethrins products and allergy/asthma effects. As a condition of the Agency's reregistration decision, EPA required the Pyrethrins Joint Venture (PJV) to:

-Institute a product stewardship program that involved a prospective, in-depth follow-up of reported pyrethrins incident cases in order to clarify the issue of a possible correlation between pyrethrins product use and adverse health incidents.

-Implement outreach to physicians and Poison Control Centers to provide them with better guidance and diagnostic standards.

In the current review, EPA used a weight of evidence approach to determine whether an association exists between pyrethrins/pyrethroid exposure and asthma and allergies. The current review included data from both animals and humans.

In the weight of evidence analysis, EPA considered consistency, reproducibility, temporal and dose concordance, and biological plausibility of the effects reported in each data set and across all data sets. Comparisons of health effects profiles were also conducted between pyrethrins/pyrethroid products and other insecticides when possible to determine whether exposure to this class of pesticides elicits a heightened or unique respiratory/dermal response compared to other insecticides.

The animal data do not indicate that exposure to pyrethrins or pyrethroid products is associated with the development or exacerbation of asthma. Data indicate that pyrethrins/pyrethroids have low acute toxicity via oral, dermal and inhalation routes of exposure and are not skin sensitizers.

The pyrethrins/pyrethroid Human Incident Data do not consistently show an effects profile that would indicate respiratory effects to be significantly heightened or biologically different from other insecticides. If this relationship were strong, a clear

and consistent pattern of effects reported across multiple human incident databases, with higher percentages of respiratory illnesses and dermal responses would be expected.

Available human epidemiological data do not consistently show results/outcomes that indicate pyrethrins or pyrethroids cause allergic and/or asthmatic responses, nor do they provide robust evidence that pyrethrins/pyrethroids trigger an allergic and/or asthmatic response.

Weight of Evidence Conclusion

Unlike previous reviews, the current assessment utilized a weight-of-evidence approach, integrating both animal and human data, to determine whether a clear association exists between pyrethrins/pyrethroid exposure and asthma and allergies. This decision is predicated on the premise that an integrative assessment is more informative than what any single dataset or study could provide, and that fundamental biological mechanisms of disease outcome are concordant across species. Based on the current analyses, the Agency concluded there is no clear and consistent pattern of effects reported to indicate conclusively whether there is an association between pyrethrins/pyrethroid exposure and asthma and allergies.

Regulatory Conclusion

The Agency is not requiring additional warnings or label statements specific to asthmatics on pyrethroids and pyrethrins end-use products, nor is the Agency requiring additional data from pyrethroid registrants at this time. However, as discussed above, as a condition of reregistration the Agency required the PJV to institute a product stewardship program that involved a prospective in-depth follow-up of reported pyrethrins incident cases to clarify the issue of a possible correlation between pyrethrins pesticide product use and adverse health incidents.

The Agency will review the pyrethrins incident data as it is submitted. If the Agency identifies discrepancies or trends in the data that differ from the incident data considered in this review, the Agency will consider requiring additional or similar data from the pyrethroid registrants.

Pesticide Illness and Injury Surveillance in Michigan: 2007

The Michigan Department of Community Health (MDCH) has been conducting surveillance for acute work-related pesticide illnesses and injuries since 2001, and began collecting data on non-occupational cases in 2006. The Public Health Code grants Michigan the authority to do public health surveillance for work-related conditions (PA 368 of 1978, Part 56, as amended), for chemical poisoning (R325.71-R325.75), and for laboratory cholinesterase test results (R325.61 and R325.68). This is the fourth annual report on work-related pesticide illnesses and injuries in Michigan. It also includes data on cholinesterase and non-occupational surveillance.

From 2001 through 2007, 696 reports of occupational exposures and pesticide illness or injury were received and 488 (70.1%) were confirmed as cases according to the surveillance case definition. In 2007, there were 132 reported occupational cases; 87 (65.9%) were confirmed.

Michigan's Poison Control Centers (PCC) remain the main data source, reporting 108 (81.8%) occupationally exposed individuals. Antimicrobials continue to be a major exposure source. In 2007, antimicrobials accounted for over 40% of the confirmed occupational cases, including the only death.

Seven (9.1%) of the confirmed cases in 2007 involved agricultural workers. Twelve (15.6%) worked in food service and another 12 in administrative and Support and Waste Management and Remediation Services, which includes applicators and landscapers. Eleven (14.3%) worked in retail and nine (11.7%) in health care. Where activity of the exposed person was known, 31 (37.8%) were exposed to pesticides inadvertently while doing their regular work that did not involve applying pesticides.

The entire report can be found at:

http://www.michigan.gov/documents/mdch/Pesticides_Annual_report_2007_final_269921_7.pdf

Edward Walker to Give Founders' Memorial Lecture

Dr. Edward D. Walker has been selected by the ESA Founders' Memorial Award Judging Panel to deliver the Founders' Memorial Award lecture at the ESA Annual Meeting this December in Indianapolis, Indiana. The honoree is the late Dr. George B. Craig, Jr.

ESA established the Founders' Memorial Award in 1958 to honor scientists whose lives and careers enhanced entomology as a profession and who made significant contributions to the field in general and in their respective subdisciplines. At each Annual Meeting, the recipient of the award addresses the conferees during Sunday's opening Plenary session to honor the memory and career of an outstanding entomologist.



Dr. Ned Walker

Dr. Walker is a professor in the Department of Entomology and the Department of Microbiology and Molecular Genetics at Michigan State University. Trained as a medical entomologist, his program involves studies of the biology and control of mosquito vectors, and the dynamics of transmission of vector-borne diseases including malaria, West Nile viral encephalitis, and Lyme disease. He obtained a B.S. (1978) and an M.S. (1979) in zoology from Ohio University, working with Dr. William S. Romoser, and a Ph.D. in entomology (1983) with Dr. George B. Craig, Jr., the honoree, was born July 8, 1930 in Chicago. He died on December 21, 1995 while attending the ESA Annual Meeting in Las Vegas. His intense enthusiasm for entomology and mosquito biology was matched only by his passion for sports at the University of Notre Dame, where he devoted the majority of his career. After obtaining a B.S. in biology at the University of Indiana (1951), where he was a collegiate wrestler, Dr. Craig earned his M.S. (1952) and Ph.D. (1956) in entomology with Dr. William R. Horsfall at the University of Illinois, engaging in the study of mosquito eggs.

After serving as a first lieutenant with the U.S. Army Preventive Medicine Detachment at Fort Meade, Maryland in 1954, and as a research entomologist with the U.S. Army Chemical Center in Maryland from 1954 to 1957, Dr. Craig joined the faculty of biological sciences at the University of Notre Dame, where he built a program on mosquito biology with an emphasis on the formal genetics of *Aedes*. He pioneered studies on genetic methods for control of *Aedes aegypti*, results of which revealed challenges that persist into the molecular era. His academic legacy included many undergraduate students who chose careers in entomology and biology, as well as numerous graduate students and postdocs.



In 1988, Dr. Craig won the ESA Founders' Memorial Award himself, delivering a speech on H.G. Dyar at the Annual Meeting in Louisville, Kentucky. He also won the ESA Distinguished Achievement Award in Teaching in 1975 and was selected as an ESA Fellow in 1986. Dr. Craig was elected to the National Academy of Sciences in 1983. According to Ned Walker, "He was an extraordinarily unassuming and generous individual, treating cub scout and colleague with equal deference."

*Dr. George
Craig*

In recent years, Dr. Walker's research has focused on malaria control in Kenya. Coincidentally, this is the same country where Dr. Craig worked on controlling the yellow fever vector, *Aedes aegypti*, using a genetic translocation. According to Dr. John Edman, emeritus professor of entomology at the University of California, Davis, "Edward Walker is an outstanding speaker. He has an extremely interesting story to tell about his African malaria research—a compelling story that every ESA member should hear."



MMCA Goes to Earth Day at MDA Office in Lansing



Volunteers Needed

MMCA is looking for members who are willing to volunteer some time to speak to groups in your area about mosquito control and mosquito control issues.

Call or email: Bill Stanuszek for more information

989-755-5751
stanuszek@scmac.org

Misting Matters

A tremendous amount of interest has been generated by pest control companies and industry in marketing and installing automatic misting systems for the purpose of reducing adult mosquitoes in residential areas. Research from Florida A&M University sheds light on automatic misting systems. The entire article can be read at: <http://pct.texterity.com/pct/200904/> These are some thoughts from the author, Dr. James Cilek.

Primarily, mosquito reduction in backyards with the MistAway system was achieved by the direct exposure of the mosquitoes to the spray. Level of control was not consistent but fluctuated considerably and was probably influenced greatly by mosquito population abundance as well as the behavior of the spray droplets impinging on their target. Median droplet size of most mosquito adulticides applied by ground ULV equipment in Florida mosquito control averages about 15 μ m. We had found that the median droplet size generated by the Hago nozzles averaged about 50 μ m. Therefore, the greater the size, the less likelihood a droplet will remain in the air column and remain available to impinge on the flying target compared with 15 μ m droplets.

Little residual toxicity (<25%) occurred to mosquitoes exposed to treated leaves of the upper canopy after mist application so this was not the primary method of control in backyards. Typical median droplet size distribution for a residual application using a fine spray is between 100 and

200 μ m. Comparatively speaking, the smaller droplet size from the Hago nozzles did not appear to apply enough insecticide on the leaves to produce much of a toxic effect. Residual sprays to vegetation are commonly applied in considerably greater volume than the 1.4 oz/min/nozzle in our study. Moreover, excised leaf bioassays from the mid and lower plant canopies showed no mosquito knockdown/mortality. Obviously, spray volume and nozzle droplet size influenced those results.

Several operational issues have been raised with automatic misting systems for adult mosquito control. The frequent application of insecticides without monitoring local mosquito abundance is inconsistent with current IPM practices of the pest control industry and remains to be resolved.

In summary, an integrated approach for comprehensive management of mosquitoes needs to be provided by a pest control company if they are to be successful in obtaining effective and sustained reduction of local mosquito populations for their clients. Client education on identifying and removing mosquito production habitats within and, if possible, immediately adjacent to the property, should be provided including information on personal protection. Certainly, the proximity of larval mosquito developmental sites and subsequent immigration of adult mosquitoes into the area to be protected will ultimately affect the level of reduction afforded by any automatic misting system.

Outdoor Residential Misting Systems Best Management Practices

ASPCRO & NPMA BMP can be found at: <http://www.kiawah-owners.org/PDFs/NPMA%20BMPs%20for%20Outdoor%20Residential%20Misting%20Systems%203%2001%2007.pdf>

EPA Fact Sheet on Mosquito Misters can be found at: http://www.epa.gov/opp00001/factsheets/misting_systems.htm

Ever wonder why Noah didn't swat those two mosquitoes?





News From Around The Districts

Well, we're in the midst of another mosquito season and all has gone pretty well so far. With that said, however, we've just had between 2 and 2 1/2 inches of rain fall throughout the county and ditches, fields, and woodlots are flooded and breeding. We are doing the best we can to get to as many larvae as we can in the short time between hatch and adult emergence, but with temperatures hovering in the low 90's, time is not on our side!

The annual spring woodland-pool treatment program marked the beginning of BCMC's mosquito control season. Control efforts included aerial spraying (over 36,000 acres) using one helicopter (Clarke Mosquito Control) and two fixed-wing aircraft (Earl's Spray Service, Inc.), with the focus on areas near cities, towns and large developments. As successful as the operation was (approximately 95% mortality of monitored larvae), we're still seeing spring *Aedes* adults (probably through mid-July) and they can be particularly troublesome in wooded areas affecting local residents.

BAY

Throughout the warm weather months, BCMC will be busy treating larval or adult mosquitoes originating from woodlots, floodplains, freshwater wetlands, grassy fields, wet meadows, roadside ditches, ponds, catch basins, as well as containers. We've already treated ditches county-wide twice in June due to two significant rain events and been back in woodlots treating *Aedes vexans* larvae. Most catch basins were treated with VectoLex, but an evaluation is taking place in Essexville with Natular XRT.

Two training sessions were held for both new and returning seasonal staff members to prepare them to test with the MDA as certified technicians. Most started working by early May and will be with us until the end of August.

We continue to monitor for West Nile virus this season by testing American Crows, Blue Jays, and mosquitoes in-house using the VecTest kit and by submitting bird bloods and mosquitoes to Dr. Walker's lab at MSU. Through June 24, we have tested four crows, all of which were negative for WNV. Eighteen mosquito pools have also been submitted to MSU for testing with results pending.

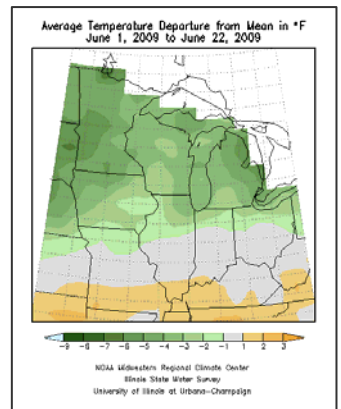
A few other items of interest: the first of two tire drives was held June 19-20 with about 3,600 tires collected (almost 1,000 more than the June tire drive of 2008!); Jake Britton of Clarke Mosquito Control visited on May 11 to check the MMD's of ULV machines for our entire fleet (thanks again, Jake).

MIDLAND

Did you ever notice that, just like the back-yard gossip, most mosquito control reports address the weather? Our problems and operational responses are all influenced by precipitation, temperature, humidity, wind, etc. When I stop to think about it I wonder why meteorology was the one class I never got to in ten years of college education.

So here goes this issue of the Midland County weather report; we have had too darn much rain this spring and have been very busy trying to keep after the spring and summer floodwater mosquito larvae. As indicated in the attached Climate Center map, it has been colder than usual in Midland County (and much of the Great Lakes region). This has been helpful in that it has reduced mosquito annoyance but it has been a hindrance by restricting the time available for ULV adulticiding.

So far things have been pleasantly quiet on the West Nile virus front in Midland County. We have seen only two likely looking corvids and both tested negative for WNV. The cold temperatures are probably helping us with regard to WNV activity. We cannot relax, though. WNV-positive birds and mosquito pools have been seen in Illinois already this year.



First I would like to take the opportunity to thank everyone for all the support I have received during my first few months at Tuscola County, thank you!

Spring in Tuscola County has been extremely wet. Most areas of the county have received 150-200 percent the normal rainfall. Of course this has increased the number of mosquitoes exponentially and in turn the phone calls to our office. During the two weeks following Memorial Day our office received over 3,000 phone calls, all requesting backyard treatment.

A new database was implemented to track citizen phone calls, requests, and treatment records in May. During June our network wiring was completely redone which has eliminated many of the connectivity problems we were experiencing. A new server was also purchased and is in the process of being configured.

The records for No Spray citizens are in the process of being updated. The maps utilized by the department are also being completely revised in the newest version of ArcView. This will be a long ongoing process.

Dates of interest for this spring are: May 5th, first spring adult trapped, May 18th first night-time adulticiding treatment completed, June 8th *Coquillettidia perturbans* made an appearance near the bay shore, and June 22nd road-side ditch treatments began.

Nighttime spraying for adult mosquitoes began on May 15th this season. We experienced a unique situation this year by having a brood of floodwater mosquitoes hatching at the same time as our spring mosquitoes hatched. These floodwater mosquitoes were the result of the heavy rains Saginaw County received during the last few days of April. With two types of mosquitoes on the wing at the same time we expected significant citizen complaint calls throughout the county. However, very cool evening temperatures for late May and early June kept the mosquitoes from flying while minimizing outdoor citizen activities. The end result was far less interaction between humans and mosquitoes than expected for this time of year. The cold weather also severely hampered our nighttime spraying as we typically shut down when temperatures reach 55 degrees and this happened frequently during the long stretch of cold temperatures we experienced. By late June temperature parameters became more normal and we began to find significant larval breeding of summer mosquitoes in habitats such as catch basins, roadside ditches, tires, and abandoned pools. Applying insecticides to these aquatic habitats has kept our crews very busy the past few weeks.

Our Education Department has just completed another year giving classroom presentations. This past school year; presentations were given to 247 classrooms reaching 7,450 students. Summer activities will include participation in the following events: Girl Scout Day Camp; Birds, Bugs (that's us), Butterflies and Blooms at the Saginaw Children's Zoo; Children' Fun Day, Touch A Truck Day and two Pond Study events sponsored by Saginaw County Parks and Recreation Department.

In conjunction with the American Mosquito Control Association, we held an Open House in observance of National Mosquito Control Awareness Week on June 24th. We also offered a breakout session for government officials during our Open House, which had several attendees.

Our agency hosted its yearly blood drive on June 25th with approximately 32 employees signing up to donate.

Our third and final tire drive of the season will be held the week of July 20th-24th. To date, we have collected and disposed of 6,977 mosquito breeding tires for Saginaw County residents



Saginaw County Mosquito Abatement Commission Hosts an Open House to Celebrate Mosquito Awareness Week



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Control Association
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Summer