

2009 Annual Program Report

Anastasia Mosquito Control District



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Mission & Goals

- 🦟 To preserve and protect the people from mosquitoes and mosquito-borne diseases.
- 🦟 To reduce/control mosquitoes through integrated pest management based on environmentally friendly and cost effective methods.
- 🦟 To minimize negative impacts on people and other living things based on valid scientific data, peer review and public hearings.
- 🦟 To spend public funds prudently.
- 🦟 To become recognized as one of the leading mosquito control districts.





Board of Commissioners & Appointed Officers



Ms. Janice Bequette, **Chairperson**

Mr. Ronald Radford, Vice-Chairperson

Mrs. Jeanne Moeller, Secretary/Treasurer

Mr. John Sundeman, Commissioner

Ms. Vivian Browning, Commissioner

Appointed Officers by the Board:

Dr. Rui-De Xue, Executive Director

Ms. Priscilla Greene, Assistant Director

Mr. Douglas Wyckoff, District Attorney

Ms. Julieann Klein, CPA



A Message from the Chairperson



2009 marked the 6th consecutive year without any kind of human mosquito – borne disease reported in St. Johns County and marked the 60th anniversary of the District. This is due to the hard work of our dedicated staff with support from the Board. The Anastasia Mosquito Control District continues to have a strong record of accomplishments as evidenced in the Annual Program Report. We have, as a team, worked hard to fulfill the Mission Statement of the District. Anastasia Mosquito Control District was the only agency to keep the same millage for the 2009/2010 budget year – no increase! Our accomplishments are made possible by the tax support of the residents of St. Johns County.

Janice Bequette
Chair 2009



The Director's Message

In February 2009, Dr. David Dame & Mr. E. John Beidler reviewed AMCD's programs and the Board of Commissioners adopted most of their recommendations.

AMCD successfully responded to more than 3,288 service requests involving the control of mosquitoes and mosquito-borne diseases. AMCD conducted the 5th annual customer satisfaction survey and increased the survey return rate based on the database (VCMS) for requested customers. Also, AMCD provided a significant amount of professional service for federal and state governmental agencies; national, state, and professional associations; local communities, clubs, and private companies and/or organizations as well as several international organizations.

The residents of St. Johns County have been free of any mosquito-borne diseases for the last 6 years, even if a total of 48 sentinel chickens tested positive for arbovirus and 2 horses positive for EEE, and St. Johns County was under a mosquito-borne illness advisory alert. AMCD continued mosquito trapping baited with dry ice for the DACS's State surveillance program and added rotator traps to determine mosquito diel activity pattern.

AMCD collected more than 1,600 tires for source reduction, built 3 fish pools at the base station and provided mosquito fish for residents for biocontrol. AMCD switched aquareslin to aqualure for adulticides and saved about \$36,000. AMCD conducted barrier treatments for mosquito control at St. Johns Golf Course, and used mosquito magnets, personal / community protection techniques, and barrier treatments to protect residents at hot areas. AMCD contracted with Southern Helicopter for aerial inspection, surveillance, larviciding, and adulticiding. After 20 inches of rain fall in late May, AMCD conducted aerial adulticiding (ANVIL& Dibrom) for 6-7 hot spots. Also, AMCD conducted aerial spray, barrier spray, and botanical repellent research.

AMCD successfully organized a summer camp, a 60 year anniversary celebration on April 2 and had an open house on September 22 for public education. AMCD provided 23 CEU's to our employees and the employees from other districts / organizations through the 6th workshop, pesticide resistance management workshop, and the FMCA symposium. AMCD organized the symposia about mosquito behavior and operational control for the AMCA national conference in New Orleans and IPM/IMM/IVM symposium for the FMCA state conference in Tampa, FL.

The staff prepared Board meetings and workshops, and many committee meetings in 2009. The District Director won the DACS's Directorship III Award in 2009, Biologist/Ph.D. student, Whitney Qualls, won the FMCA's scholarship.

AMCD has started to use MapVision to improve our customer service and data management in late 2009.

Thanks for your support and service to the AMCD's programs.

Sincerely,


Dr. Rui-De Xue, Director





Committee Members

1. **PLANNING COMMITTEE:**

Commissioner: Ms. Vivian Browning (Chair)

Director: Dr. Rui-De Xue

Assistant Director: Ms. Priscilla Greene

Supervisor: Mr. John Boone

Biological Technician: Mrs. Whitney Swan

2. **FINANCIAL / AUDITOR COMMITTEE:**

Commissioner: Mr. John Sundeman (Chair)

Accountant: Mr. Scott Hanna

Director: Dr. Rui-De Xue

Assistant Director: Ms. Priscilla Greene

Admin. Office Asst.: Ms. Charolette Hall

3. **OPERATIONAL COMMITTEE: (Ground/Aerial)**

Commissioner: Mr. Ron Radford (Chair)

Director: Dr. Rui-De Xue

Assistant Director: Ms. Priscilla Greene

Biological Technician: Mr. Mike Smith

Supervisors: Mr. John Boone, Mrs. Kay Gaines,
Mr. David Taylor

4. **EDUCATION COMMITTEE:**

Commissioner: Mrs. Jeanne Moeller (Chair)

Education Specialist: Mr. Adam Holt

Supervisor: Mrs. Kay Gaines

Biological Technician: Mrs. Whitney Swan

Employee: Mr. Patrick Kendrick

5. **APPLIED RESEARCH COMMITTEE:**

Commissioner: Ms. Janice Bequette (Chair)

Biological Technician: Mrs. Whitney Swan

VCMS Coordinator: Mr. Richard Weaver

Biological Technician: Mr. Mike Smith

Education Specialist: Mr. Adam Holt

6. **SAFETY COMMITTEE:**

Safety Coordinator: Mr. Richard Weaver

Assistant Director: Ms. Priscilla Greene

Employees: Mr. David King (Base), Mr. Ken
Daniel (Base),

Mr. Edward Schneider (North
Station),

Mr. Eugene Wells (North Station),

Mr. John "Freddie" Allen (South
Station),

Mr. Loren Smith (South Station)



Full Time Personnel

Administration	Name	Hire Date
Executive Director	Dr. Rui-De Xue	4/14/03
Assistant Director	Priscilla Greene	3/10/08
Administrative Office Assistant	Charolette Hall	11/05/07
Accountant	Scott Hanna	7/09/07
Department of Entomology		
Biological Technician	Mike Smith	11/05/84
Biological Technician/Ph.D. student	Whitney Qualls	3/20/06
VCMS Coordinator	Richard Weaver	4/14/03
Education Specialist	Adam Holt	11/03/08
Base Station		
Supervisor	Kay Gaines	8/07/00
Inspector/Sprayers	David King	2/1/08
	Tom Downey	3/1/06
	Greg Griggs	4/15/91
	Cathy Hendricks	7/08/02
	Patrick Kendrick	4/07/03
	Ken Daniel	9/26/05
	Elaine Scanzani	3/20/02
	David Strickland	3/10/97
Mechanic	James Wynn	3/04/96
North Station		
Supervisor	John Boone	4/17/00
Inspector/Sprayers	Michelle McCoy	3/1/06
	Mike Mills	3/31/03
	Vincent Price	6/01/99
	Ed Schneider	10/23/00
	Paul Whatley	7/08/02
Mechanic	Gene Wells	11/26/79
South Station		
Supervisor	David Taylor	2/28/94
Inspector/Sprayers	Freddie Allen	7/08/02
	Steve Solana	4/24/00



Seasonal Personnel

Part-Time	Name	Dates of Service (2009)
Biological Technician Intern	Brimon Hartwell	05/01-08/21
Science Education Intern	Laurie Dickinson	05/01- 07/16
Utility Helper	Donald Segui	05/01-06/09
Inspector/Sprayer	Christopher Hill	05/01- 06/12
Inspector/Sprayer	Gary Pendergraft	05/01-06/26
Seasonal Full-Time		
Inspector/Sprayer	Steven Steele	05/01-10/30
Inspector/Sprayer	Ronald Steinmueller Jr.	05/01-10/30
Inspector/Sprayer	Barbi Watkins	05/01- 10/30
Inspector/Sprayer	Jason Wlodarczyk	05/05-10/31
Inspector/Sprayer	Bobby Robinson	05/28-11/27
Inspector/Sprayer	Daniel Bilyeu	05/01-10/30
Inspector/Sprayer	Dennis Thierien	05/01/10/30
Inspector/Sprayer	Brandt Wilson	07/07-10/13
Lab. Assistant	Steven Miller	05/01-10/30





Customer Service

AMCD provides a variety of services to a diverse array of customers including local residents, associations and clubs; federal and state governmental agencies, national and international professional associations, research and educational institutions/universities, commercial and private companies, and other various organizations.

Most of the service requests involved issues such as increased mosquito populations, fogging/spraying requests, pesticide safety concerns, arthropod identification, pesticide application, personal protection methods, mosquito prevention, and commercial mosquito traps, repellents, and tools from local residents. We answered more than 3,288 service requests from local residents by phone, e-mail, fax, and walk-ins which was primarily due to a massive countywide rainfall of 22+ inches in late May. We followed the Florida Statute Chapter 388 and DACS's 5E-13, EPA labels, and the District's procedures to provide necessary inspections, fogging and spraying.

The Director and Supervisors successfully fulfilled more than 30 special requests concerning conflicts between AMCD employees and unsatisfied customers, hot spot areas, and EEE foci.

In addition, we have cooperative projects regarding pesticides and equipment evaluations; mosquito control and development; reviews of the related projects; grant applications; and professional manuscripts for national and international journals, organizations, associations and private companies.

We conducted the 5th annual customer satisfaction survey by mail. In June of 2009, St. Johns County experienced a massive rainfall over seven continuous days resulting in 22 inches. This brought on an exorbitant amount of needed workforce to control the rising mosquito populations. To our desire, we successfully fulfilled over 2000 service requests meeting the individual needs of St. John County residents. Our primary goal is protecting the public from mosquito-borne diseases. The results presented below fully support the above statements.



Customer Satisfaction Survey

Survey Questions

1. The goal of AMCD is to preserve and protect the community from mosquitoes and mosquito-borne diseases by reducing nuisance and disease spreading mosquito populations.

2. I am aware of the measures I can take to protect myself from mosquitoes and mosquito-borne diseases by practicing the 5 D's of Prevention:

Don't go outside between **Dusk** and **Dawn**.
Use a repellent containing 30% or less **DEET**.
Drain standing water and empty containers to prevent mosquito larvae.
Dress to reduce exposed skin while outside.

3. I am an active participant in contributing to the 5 D's of Prevention.

4. AMCD staff are professional.

5. AMCD's staff responds to my service requests within the standard 3-4 business days.

6. AMCD staff is informative.

5 – Strongly Agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree

Statistical Analysis

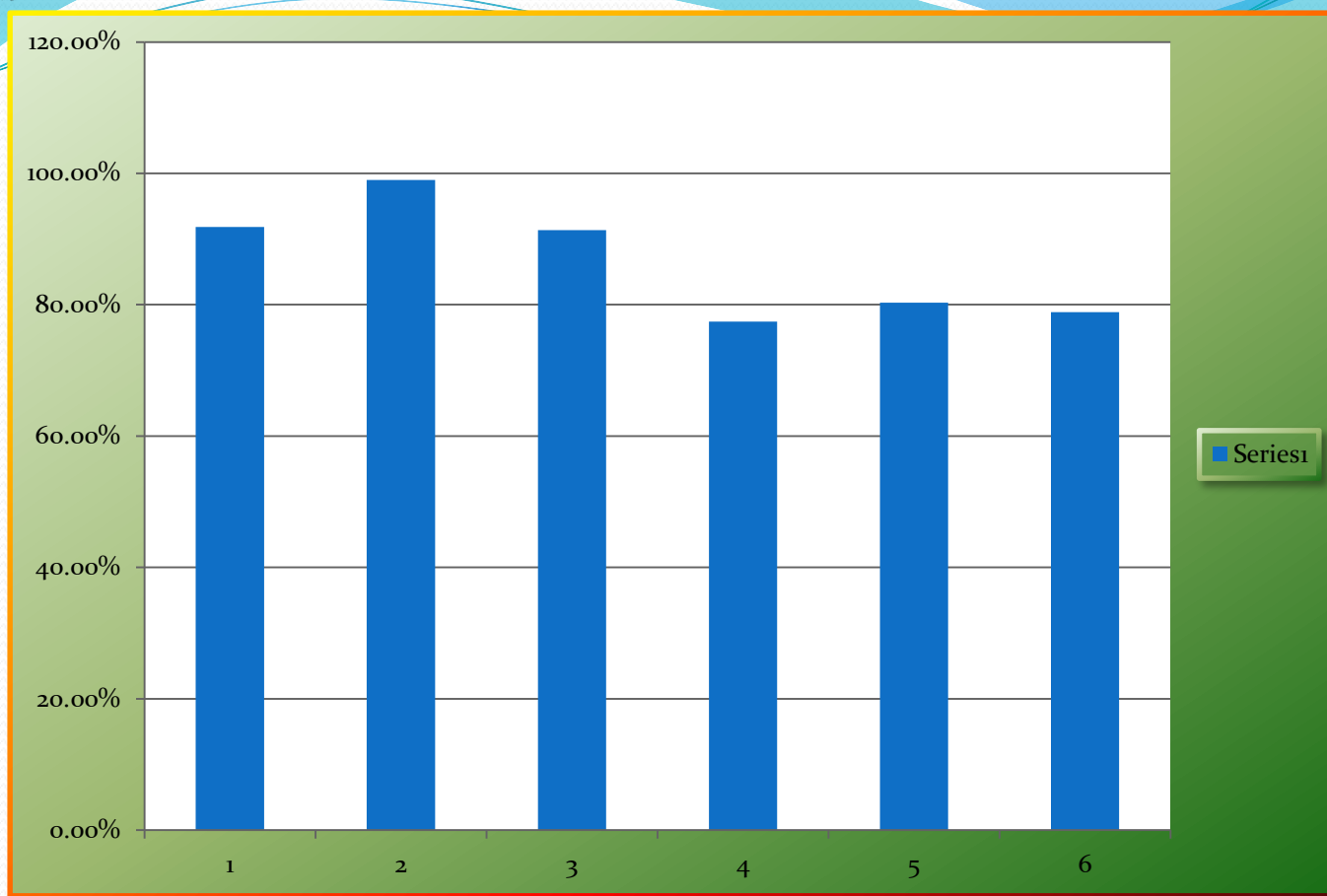


= "Overall Agreed"

	Question #1	Question #2	Question #3	Question #4	Question #5	Question #6
5	81.63%	83.23%	64.47%	61.03%	60.10%	57.22%
4	10.20%	15.74%	26.90%	16.41%	20.21%	21.65%
3	4.08%	1.02%	6.60%	14.87%	7.77%	9.79%
2	2.55%	0%	0.51%	5.13%	6.74%	5.67%
1	1.54%	1.02%	1.52%	2.56%	5.18%	5.67%

 On average, 80% of the returned surveys (195/473) overall agreed with every question.

 41% of the mailed surveys were completed and returned.



✖ The graph above shows great significance exhibiting that on average, 87% of responding surveyers "Agreed" with questions 1-6.

✖ Averaged "Strongly Agreed" and "Agreed" responses with the overall average in yellow.

91.83%	98.97%	91.37%	77.44%	80.31%	78.87%	86.47%
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Professional Service:

The Anastasia Mosquito Control District works in cooperation with a number of related professional agencies. Those listed below briefly describe the work associations with AMCD in 2009:

Associations:

AMCA (American Mosquito Control Association) & FMCA (Florida Mosquito Control Association). Our District is a sustaining member of the AMCA & the FMCA: Dr. Xue organized a symposium for the AMCA meeting about behavioral and operations control, New Orleans, LA, April 5-8, 2009, and a FMCA annual meeting symposium about IPM/IMM/IVM, Tampa, November 11-14, 2009. Five presentations were given at the AMCA meeting in April and the FMCA meeting in November. Dr. Xue and Mrs. Swan reviewed many manuscripts for the Journal of the AMCA and other journals.



Dr. Xue served on the Board of the FMCA as the Northeast Regional Director and co-instructor at the FMCA's "DODD" Short Courses about AMCD's research and barrier spraying at the Director and general sessions. Mr. John Boone taught class as the co-instructor at the FMCA's Dodd Short Course in 2009.

ESA (Entomological Society of America) & SOVE (Society for Vector Ecology): Dr. Xue & Mrs. Qualls both reviewed manuscripts for the "Journal of Medical Entomology"; however, only Dr. Xue reviewed manuscripts for the "Journal of Vector Ecology" and co-organized the 5th International Meeting about sugar and plant feeding behavior and possible control in Turkey during the week of October 10-15, 2009.

FASD (Florida Association of Special Districts): AMCD is a member. Commissioner V. Browning & Assistant Director Ms. P. Greene attended their annual meeting in St. Augustine, June, 2009.

International, National, and Federal Agencies:

Dr. Xue used his vacation time and cooperated with Dr. Tong-yan Zhao to organize the 1st International Forum for Surveillance and Control of Mosquitoes and Mosquito-borne Diseases, Beijing, May 25-28, 2009. Commissioner Mrs. J. Moeller moderated the legislation session and gave a presentation about Florida mosquito control legislation.

Dr. Xue was invited and used his annual leave to give a lecture about disease surveillance in the US and China CDC's workshop, in Xining, Qinghai, July 13-15, and visited Hainan's CDC for malaria control consulting and gave a lecture about mosquito-borne diseases and control on July 16-17.

Dr. Xue and Dr. G. Muller organized a symposium titled "Sugar and Plant Feeding Behavior and Possible Control" for the SOVE's 5th International Congress, Turkey, October 10-16, 2009. Also, Dr. Xue was invited by Dr. Debboun (US Army) to give a presentation about behavior and repellent testing at his symposium. Dr. Xue consulted and visited Israel's field toxic bait sites on October 17-19.

Dr. Xue was invited and used his annual leave to visit Nigeria where he consulted "The Creation of Mosquito Control and Malaria Free Areas" program from December 1-5, 2009.

USDA (United States Department of Agriculture): The AMCD continued a collaboration for research about GIS & mosquito populations and mosquito-borne disease surveillance. The AMCD also cooperated with the USDA in a study about mosquito traps and attractants, larvicide test, barrier spray, repellants and employee training and workshop projects.



Dr. Xue cooperated with CDC's Dr. J. McAllister to hold pesticide resistance workshop on November 12, 2009.

Dr. Xue consulted FBI and other agencies about the prevention of bioterrorist threats and had the meetings with them 5 times in 2009.

State Agencies/Universities:

UF (University of Florida): The AMCD cooperated with UF's Medical Entomology Laboratory (Dr. J. Day) at Vero Beach to train a Ph.D. student.

UF/IFAS/MFREC (Mid-Florida Research and Education Center): Dr. Xue cooperated with Dr. A. Ali on a study of mosquito and midge ecology, control and the evaluation of pesticides and repellents.

UF Whitney Laboratory: Dr. Xue cooperated with Dr. W. Harvey about the bioterrorist threat prevention projects and employee training.

FAMU/PHEREC (Public Health Entomology Research & Education Center): Dr. Xue and Mrs. W. Swan cooperated with Dr. H. Zhong to check the residue and efficacy of pesticides and pesticide impacts on honey bees. Dr. Xue served in the capacity as the center's advisory committee member.

UNF (University of North Florida): AMCD cooperated with Dr. D. Bowers about disease research and to train a Ph.D. student.

USF (University of South Florida): AMCD cooperated with USF about EEE vector sample and study.

DACS (Department of Agriculture and Consumer Services): The AMCD has an operational contract with DACS. AMCD provided the monthly report on time and joined the State's mosquito population surveillance program. DACS provided training for AMCD employees and made several presentations at AMCD workshops. Dr. Xue served the FCCMC's research committee as a member to review grant applications.



DOH (Department of Health): The AMCD cooperated with the DOH to conduct County-wide disease surveillance, sentinel chicken test, and news release.

Companies:

- 🦟 Clark Mosquito Control funded for a new formulation of adulticide, DUET study
- 🦟 ICI, Baltimore, for cooperation on pesticide test
- 🦟 Home, LL for natural repellent test
- 🦟 MGK's protocol development and discussion
- 🦟 Australia pest control company's smoking formulation
- 🦟 China/Japan's sticky traps
- 🦟 Edges Associate for MapVision

Other services:

- 🦟 DACS's grant reviews (19 applications)
- 🦟 Reviewed manuscripts for the following journals in 2009:
 - 🦟 Journal of Medical Entomology (4)
 - 🦟 Journal of Vector Ecology (1)
 - 🦟 Journal of the American Mosquito Control Association (4)
 - 🦟 Journal of Insect Sciences (2)
 - 🦟 Parasitology Research (6)
 - 🦟 Journal of Parasitology (2)



Surveillance

1. Arbovirus



AMCD monitored West Nile virus (WNV), eastern equine encephalitis virus (EEE), Saint Louis virus (SLE), Highland J virus (HJ), and California group viruses using 11 sentinel chicken sites around SJC. In 2009, there were no human cases but 2 horse cases for EEE. Saint Johns County was also under an mosquito-borne illness advisory alert from August 13, 2009 to January 3, 2010. AMCD bled a total of 66 chickens a week from March through December. A total of 48 sentinel chickens tested positive for diseases: 25 for EEE, 13 for WNV, and 10 for HJ. Figure 1 lists the total number of positive chickens/ site for each of the diseases tested in 2009.

2. Mosquito Population



Adult mosquito population surveillance by performing CDC light traps baited with CO₂ and octenol. There are a total of 45 octenol baited traps and 6 CO₂ baited traps. FDACS's State Surveillance program collects light trap information using CO₂ as the main attractant. Table 1 lists the total and average number of mosquitoes collected in both light traps baited with CO₂ and octenol. Figure 2 and 3 show the top five species collected in both traps and the seasonality of the mosquito population in SJC in 2009, respectively. Mosquito populations were extremely high in the early mosquito season due to rainfall received in May. Landing rate counts (LRC) are performed three times a week at 145 locations to monitor adult biting activity in SJC. The total number of mosquitoes landing and average/site is shown in Table 1. Larvae are regularly monitored and inspected to identify breeding sites and optimize control of immatures before they become adults. There were a total of 55,708 larvae dipped this year with an average of 5 mosquito larvae/successful dip.

3. Environmental Parameters

AMCD monitors 63 rain gauges and 2 tide gauges three times a week to predict when and where larviciding activities may need to take place.

Table 1. Total numbers of mosquitoes collected in light traps baited with two attractants and mosquitoes counted during landing rate counts (LRC) from 2007-2009. Average number of mosquitoes collected in traps and counted in LRCs in 2009.

	Totals			Average/Site
	2007	2008	2009	2009
CDC light traps (Octenol)	28996	50541	156563	3479
Landing Rate Counts	13636	8819	21465	148
Surveillance Light Traps (CO₂)	22786	261067	377728	62954

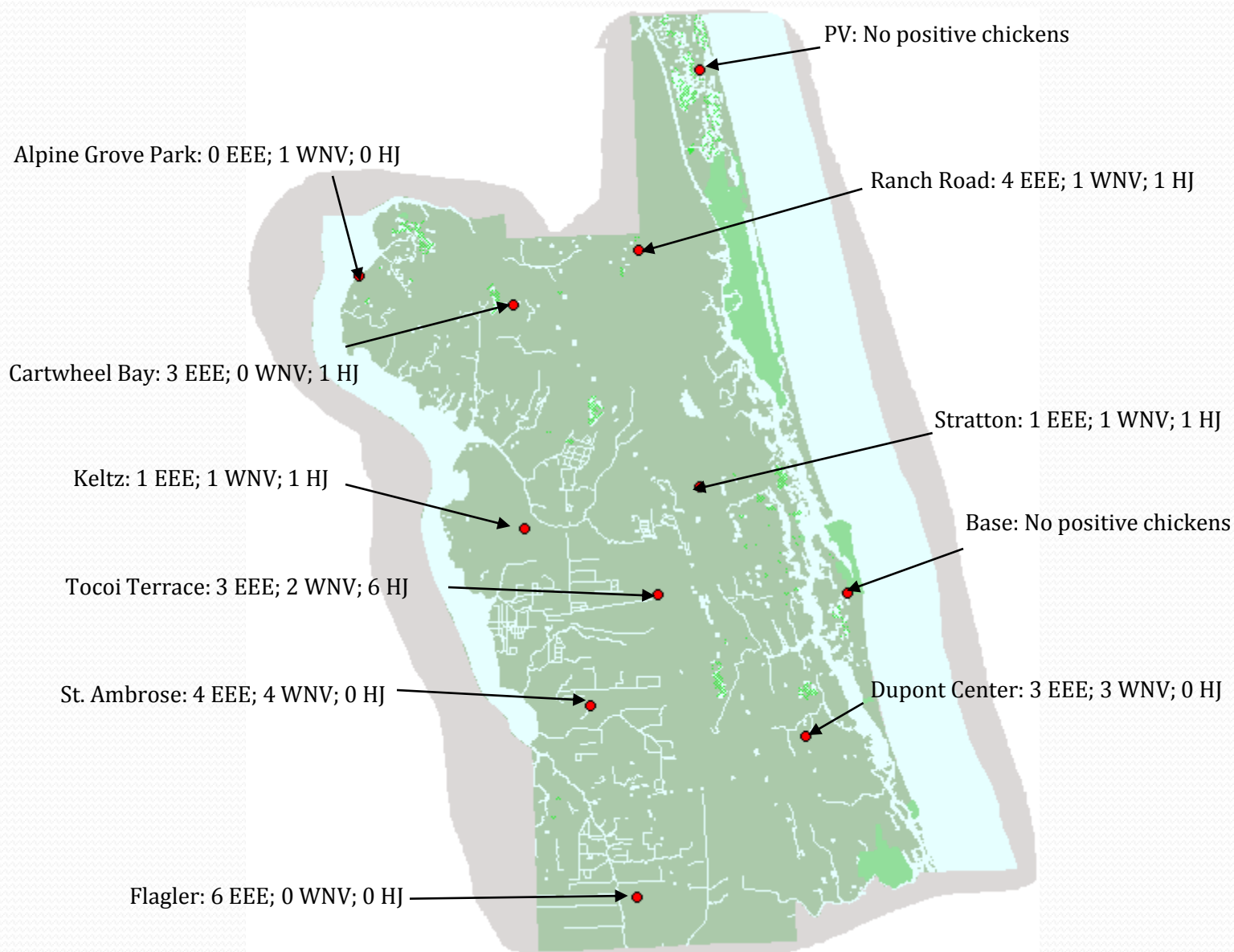
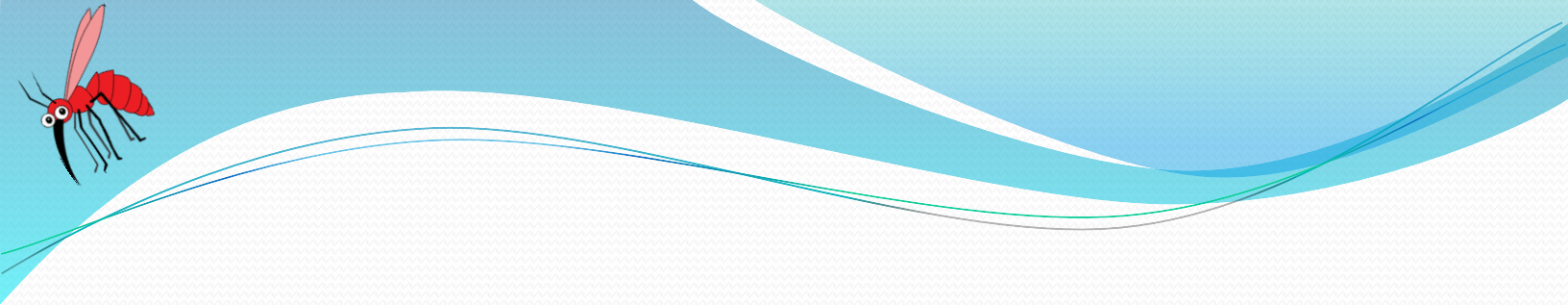


Figure 1: Location of the 11 sentinel chicken sites with the number of positive chickens at each site for EEE, WNV, and HJ for the 2009 mosquito season.

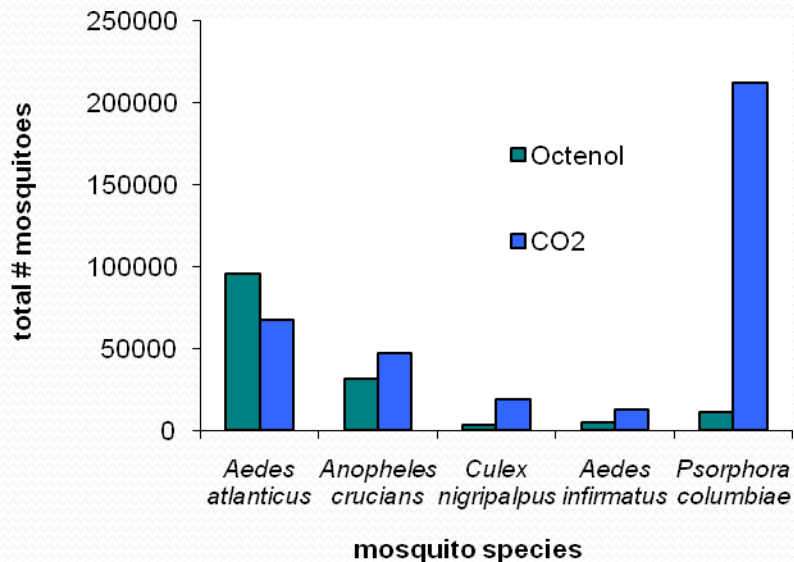
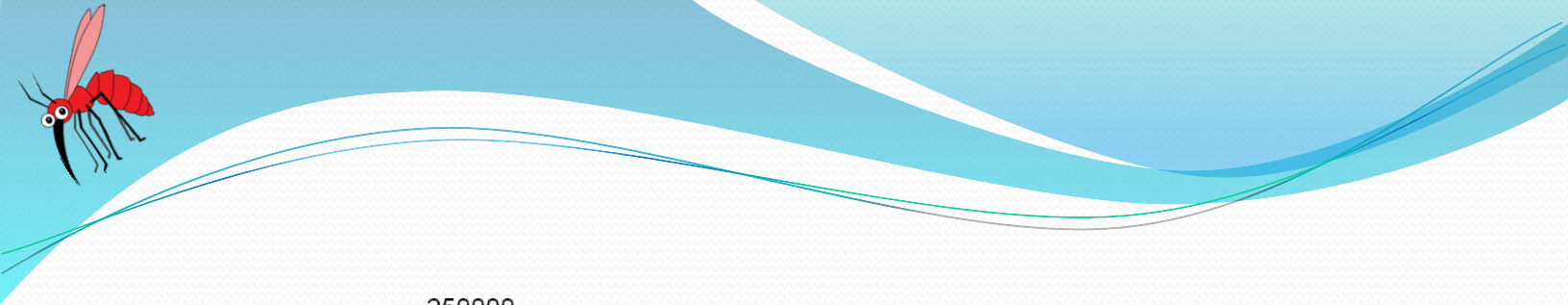


Figure 2. Top five mosquito species collected from March to December, 2009 in St. Johns County in CDC light traps. Collections using octenol are shown in green and collections using dry ice are shown in blue.

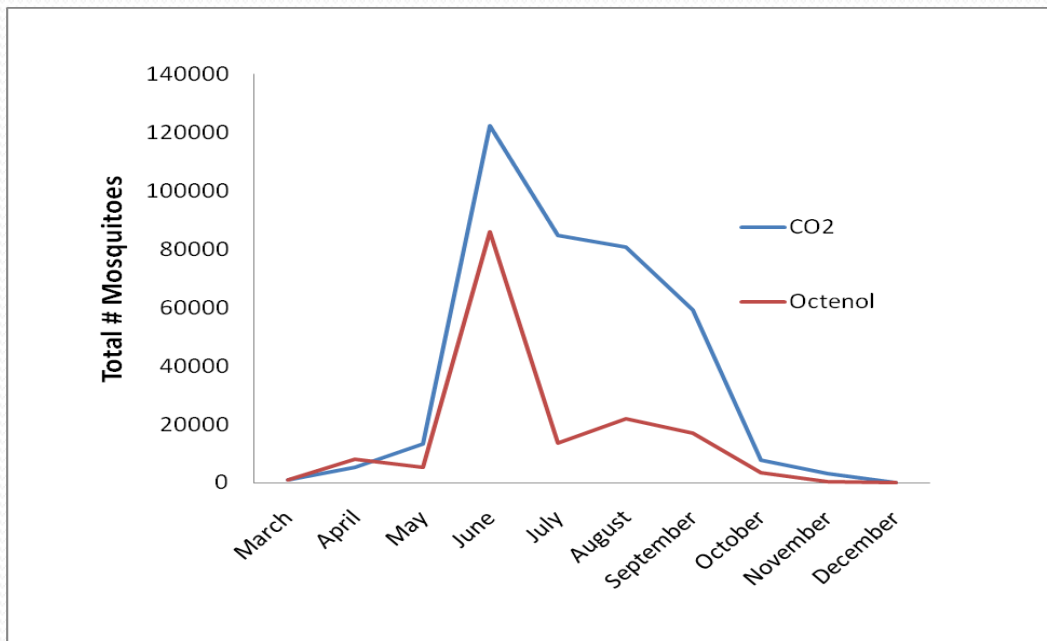


Figure 3. Seasonality of mosquitoes collected in SJC in 2009.



Operation Control

Ground Application (1.) Source Reduction



Source reduction is an important aspect and permanent solution for mosquito control. AMCD determines the areas that need source reduction based on customer contact, service requests, and inspection/surveillance. AMCD manages source reduction through customer education. The inspector/sprayer will go out to the residential area/sites, survey the property for mosquito breeding sites such as tires, bird baths, kiddie pools, vases, buckets, pet bowls, jars, toys, boats, bromeliads, pitcher plants, etc. The Inspectors inform the customer after they

confirm a positive breeding site for mosquito larvae and then implement a plan of action. The inspector/sprayer also educates them that by simply emptying the water from these containers once a week will help reduce adult mosquito populations. Even if a customer is not at home, an assessment is made and a door hanger is left explaining where the mosquitoes are coming from, what treatments were made, and ways to prevent mosquitoes from growing on their personal property.

AMCD has a tire removal program. Upon receiving service requests, inspector/sprayers go to the sites and remove old tires free of charge. In 2009, more than 1,600 tires were collected.

AMCD also assisted local residents and home owner associations at various locations such as the St. Johns Golf Course and Coquina Gables for ditching, storm drain, and retention ponds to reduce possible mosquitoes and blind mosquito (midge) breeding sites. AMCD is in cooperation with the County Road & Bridge Department and St. Augustine Beach City to help the residential area for ditching and storm drain projects.

In 2009, AMCD and DEP created and hired a field biologist to study the impacts of marsh restoration on aquatic insects including mosquito populations in State Parks.





(2). Larvicides and Larviciding

St. Johns County is approximately 609 square miles which is equal to 389,760 acres. More than 120,000 acres are marsh and wetlands which frequently produce mosquitoes. The district treats acres of accessible breeding sites, sometimes repeatedly during the mosquito season. Those sites include salt marsh, freshwater swamps, ditches, flooded pastures, yards, storm drains, catch basins and artificial containers. Inspector sprayers routinely monitor breeding sites, rainfall amounts, temperature and tide gauges. The district uses environmentally safe and effective larvicides including Altosid, Golden Bear, Agnique, and *Bacillus thuringiensis israelensis* (BTI). Inspectors distribute or transfer larvae eating fish to sites that have high mosquito larval populations with the absence of natural predator populations.

Larviciding Summary

Larvicide	Application Amount	Acres	# Treatments
Agnique MMF	4.63 gal.	9.25	4
Altosid Briquets	2,716 ea.	6.24	51
Altosid Pellets WSP	23,824 ea.	73.83	332
Aqaubac 200 G	1,080 lbs.	180	39
Aquabac XT Liquid	1,144 gal.	18,306	1,784
Golden Bear	93.59 gal.	31.19	145
Teknar G	95 lbs.	16	5
Vectorbac G (by air)	200 lbs.	33.33	4
Summit BTI briquets	104 ea.	0.24	14
Zoecon Altosid XR-G	9,253 lbs.	1,542.20	336



(3). Adulticides and Adult Control



Adult mosquito control is accomplished by hand fogging for backyards, ULV truck spraying for neighborhoods/subdivisions, aerial application for large areas and emergency situations, and barrier treatment for small hot spots. Adulticide materials are to treat areas where adult mosquitoes are found in numbers that justify treatment.

In 2009, Aqua-Reslin (permethrin), ANVIL 10 + 10 (sumithrin for aerial application and hand fogger), and resmethrin (hang fogger) were utilized. Materials were applied using variable speed pumps, a monitor III & IV computer system and high pressure nozzles.

Aqua-Reslin (active ingredient: permethrin) is a concentrated liquid product that is mixed with nine parts water to one part concentrate, and applied using the ULV trucks. Aqualuer 20-20 replaced Aqua-Reslin in 2009.

Adulticide Summary

Adulticide	Application Amount (Gallons)	Acres	# Treatments
ANVIL 10+10 (by air)	94.4	20,011	9
Aqua-Reslin	103	99,569	104
Talstar P	0.98	2.8	3
Aqualuer 20-20	495.5	481,016	454

(4). Personal/Community Protection and Prevention

Protection against mosquito bites is promoted through public education. AMCD encourages the public to be proactive by following the “5 D’s of Prevention” and offering other prevention tips. In some hot spots or special events, we used mosquito magnets and barrier spray for protection.

5 D’s of Prevention:

- Don’t go outdoors between **DUSK** & **DAWN** when mosquitoes are most active.
- To protect against bites, **DRESS** so your skin is covered with clothing.
- Apply mosquito repellent containing **DEET*** to bare skin and clothing.
- Empty containers and **DRAIN** stagnant water so mosquito wrigglers can’t grow up to become biters.

Prevention Tips:

1. Repair screens and spray them with repellents containing 30% or less DEET.
2. Remove debris such as piles of leaves, mulch or any other natural sources containing possible standing water.



2. Aerial Application

AMCD has a contract service with Clarke Mosquito Control for aerial application during emergency situations. AMCD also has a contract service with Southern Helicopter for inspection, larviciding, and adulticiding at hot spots on an as need basis. In 2009, St. Johns County did not have an emergency situation due to a hurricane , an epidemic or mosquito-borne diseases; however, there were 20 inches of rainfall in late May resulting in >2,500 service requests for spraying. AMCD collaborated with Southern Helicopter to conduct inspection and adulticiding operations for 6-7 hot spots/zones from June 2 through June 11. Southern Helicopter conducted several inspections in late May resulting in an aerial application using ANVIL 10+10 (DACS approved product) over 19,199 acres. Since the results were not successful, Southern Helicopter performed a second aerial application using Dibrom over the many hot spots totaling 102,608 acres.

Operation	Contract Company	Date(s)	Cost (dollars)	Acres	Product applied
Inspection/Aerial Application	Southern Helicopter	May	35,813	19,199	ANVIL 10+10
Aerial Application	Southern Helicopter	June	161,432.30	102,608	Dibrom
		Totals:	197,245.30	121,807	





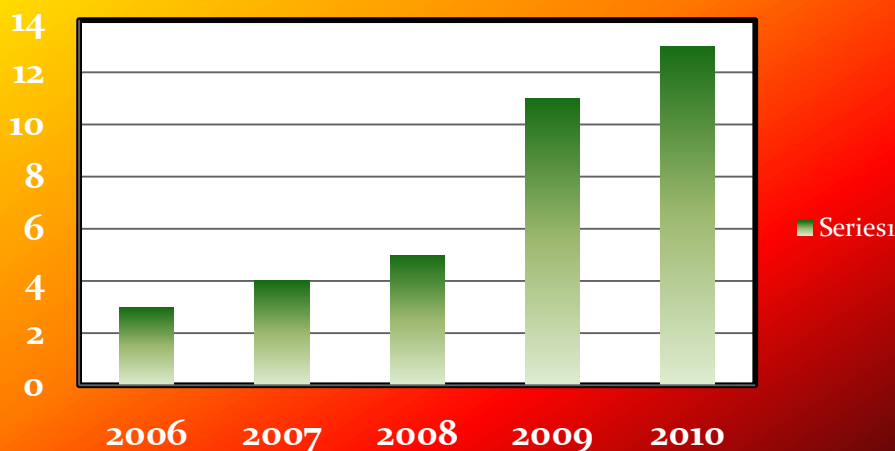
Education/Training

1. Public Education

(1.) Teaching & Judging Events

School Name	# Hours	# Students	# Days	# Classes	Dates
St. Johns County Regional Science Fair	6	150	1	0	Feb. 4
Cathedral Parrish School (7th)	2	52	1	2	5-Mar
Homeschoolers By the Sea	4	52	2	4	March 12,19
Murray Middle School "Earth Day"	6	80	1	4	1-May
Gamble Rodgers	3	40	1	2	14-May
Hartley Elementary	6	120	3	6	May 19, 21-22
R.B. Hunt Elementary	6	120	3	6	May 26-28
AMCD Science Summer Camp	30	11	5	1	June 15-19
Durbin Creek Elementary (5th)	21	175	9	7	Sept. 15-17 Sept. 22-24 Sept. 29-Oct.1
Southwoods Elementary (5th)	15	125	6	5	Oct. 6-8 Oct.12,14-15
Rawlings Elementary (1st)	9	180	5	9	Oct. 19-23
Sebastian Middle School (6th)	15	125	6	9	Nov. 16-19, 24
Gamble Rodgers Middle School Science Fair	3	30	1	0	Nov.
Cathedral Parrish School (7th)	2	38	1	2	7-Dec
	119	1118	43	57	

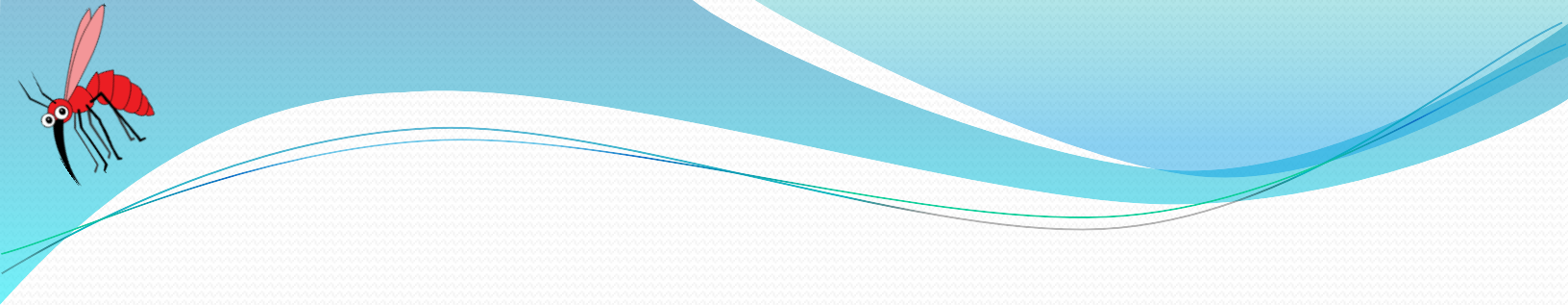
Number of Public Schools





(2.) Community Events/Public Relations

January	18th	Flager Estates Community Collection Day
February	26th	1240 WFOY Talkshow
April	2nd	60th Celebration Anniversary
	12th	St. Augustine Easter Festival Parade
	18th	Washington Oaks Earth Day
	19th	Washington Oaks Earth Day
	25th	Southwoods Elementary School (4th Annual Community Health Fair)
May	1st	Gamble Rodgers Festival
	2nd	Gamble Rodgers Festival
	9th	A1A Publix
	15th	St. Augustine Amphitheater - Harry Potter
	16th	World Golf Village Publix
June	6th	Home Depot: Emergency Preparedness Day
	10th	SJC Tax Office
July	9th	1240 WFOY Radio Talkshow
	10th	Home Depot
	15th	SJC Pier Farmers Market
	16th	SJC Health Department EXPO
	17th	Palm Valley Publix
	24th	SJC Public Library - SE Branch
	31st	SJC Tax Office
August	5th	Moultrie Oaks
	7th	US1 South Publix
	12th	WFOY 1240 Talkshow
	15th	Home Depot
September	8th	WFOY 1240 Talkshow with John Riordan
	9th	St. Johns River Community College Information Fair
	10th	Alligator Farm Teacher Open House
	12th	BBQ, Apple Pie and U.S.
	19th	Home Depot
	22nd	Anastasia Mosquito Control District 2009 Annual Open House
October	10th	Alpines Grove Park "Family Fun Festival"
	17th	17th Annual Cracker Day
	21st	WFOY 1240 Talkshow with Al Brennan



November	5th	Kiwanis Club Presentation	
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December	5th	St. Augustine Annual Christmas Parade	
	12th	Hastings/Flager Estates Annual Christmas Parade	

(3.) Newspaper Articles/Advertisements

January	1-30th	Coffee News	"AMCD Offers Students...."
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February	1-30th	Coffee News	"AMCD Offers Students...."
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March	11th	St. Augustine Record	AMCD 60 Year Celebration (ad)
	14th	St. Johns Sun	Chickens being used to test for mosquito viruses
	15th	St. Augustine Record	60 Year Celebration (under "NEWS and NOTES")
	22nd	St. Augustine Record	Public Workshop for AMCD Review (for 3-26-09)
	24th	St. Augustine Record	60 Year Celebration (under "NEWS and NOTES")-again
	1-30th	Coffee News	"AMCD: Fite the Bite! Poster Contest!"

April	12th	St. Augustine Record	AMCD Science Summer Camp
	1-30th	Coffee News	"AMCD: Fite the Bite! Poster Contest!"

Fight the Bite


Poster Contest

For 5th and 6th Grade Students

"Reduce the risk of getting ill from
viruses carried by mosquitoes."

Sponsored by:

"The CENTER for DISEASE CONTROL and PREVENTION"
and the "DEET Education Program"



For information contact Adam Holt, AMCD Education Specialist
at: 904-471-3107 ext. 206 or adamamcd@bellsouth.net



May	19th	St. Augustine Record	Mosquito "Horde" to Follow Rain
	20th	St. Augustine Record	CORRECTION: Number of mosquitoes expected after the weeks rain misstated how AMCD inspectors check mosquito landing rates
	20th	St. Augustine Record	EDITORIAL: Don't Let Those Mosquitoes Get You
	24th	St. Augustine Record via Jacksonville.com	County is Ready for Post-Rain Mosquito Boom
	28th	Florida Times Union	Itchy Yet? Mosquito Weather Days Away
	1-31st	Coffee News	"AMCD: Science Summer Camp"

June	2nd	St. Augustine Record	Aerial Spraying of Mosquitoes Begins
	11th	Florida Times Union via Jacksonville.com	St. Johns Workers Try to Clear Lingering Mosquitoes
	12th	St. Augustine Record	Mosquito Boom to Dry Up
	25th	St. Augustine Record	Mosquito Board: Spraying was Safe
	1-30th	Coffee News	"AMCD: Practice the 5 D's!"

July	1-30th	Coffee News	"AMCD: Fite the Bite at Our New Website"
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August	2nd	St. Augustine Record	Today's Citizens Protect the Earth's Future
	5th	St. Augustine Record	Group Organizing for Insect Awareness
	11th	St. Augustine Record	Other Creatures Lost with Mosquito Spraying
	15th	St. Augustine Record	Officials Warn about Mosquito-Borne Diseases
	16th	St. Augustine Record	Mosquito Control keeps Residents Safe From Disease
	18th	St. Augustine Record	Local Biologist Studying Marsh Birds, Mosquitoes
	31st	St. Augustine Record	Mosquitoes are Picky about their Appetite
	1-31st	Coffee News	"AMCD: Fite the Bite at Our New Website"

Sept	15th	St. Augustine Record	Sentinel Chicken Diagnosed with West Nile Virus
	19th	St. Augustine Record	Anastasia Mosquito Control District 6th Annual Open House
	20th	St. Augustine Record	Anastasia Mosquito Control District 6th Annual Open House
	22nd	St. Augustine Record	NEWS & NOTES: "OPEN HOUSE" (for 9-22-09)
	1-30th	Coffee News	"AMCD: Fite the Bite at Our New Website"

October	23rd	PV Recorder	Feeling the Sting
	25th	St. Augustine Record	EDITORIAL: Control of Mosquitoes is What Counts
	27th-Nov 2nd	FOLIO WEEKLY	Bouquets & Brickbats: "Bouquets to the Anastasia Mosquito Control District of St. Johns County"
	1-31st	Coffee News	"AMCD: Fite the Bite at Our New Website"

Nov	1-30th	Coffee News	"AMCD: Fite the Bite at Our New Website"
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Dec	1-31st	Coffee News	"AMCD: Fite the Bite at Our New Website"
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2. Publications

(1.) Literature

- ✖ **Xue, RD, Pridgeon, JW, Becnel, JJ, Ali, A. 2009.** Fipronil as a larvicide against the container-inhabiting mosquito, *Aedes albopictus*, J. Am. Mosq. Control Assoc. 25:224-227.
- ✖ **Barnard, DR, Xue, RD. 2009.** Bloodmeal mass and oviparity mediate host avidity and Deet repellency in *Aedes albopictus* (Diptera: Culicidae). J. Med. Entomol. 46:1235-1239.
- ✖ **Qualls, WA, Xue, RD. 2009.** Field evaluation of three botanical repellents against *Psorophora ferox*, *Aedes atlanticus*, and *Aedes mitchellae*, J. Am. Mosq. Control Assoc. 25:379-381.
- ✖ **Xue, RD, Barnard, DR., Ali, A. 2009.** Influence of multiple blood meals on gonotrophic dissociation and fecundity in *Aedes albopictus*, J. Am. Mosq Control Assoc. 25:504-507.
- ✖ **Xue, RD, Barnard, DR. 2009.** Partial blood meal, carbohydrate availability, and bloodfeeding-postnment effects on human host avidity and Deet repellency in *Aedes albopictus*. J. Am. Mosq. Control Assoc 25:431-435.

(2.) Website

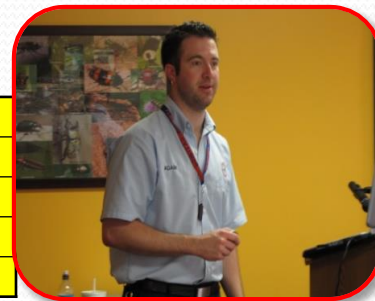
In 2009, we introduced a brand new website to St. John's County residents with newly innovated links for navigating subjects such as the operations of Anastasia Mosquito Control District, mosquito biology, control, metamorphosis, prevention and more. We have included exciting new interactive videos, online surveys, blogs, latest news, and an interactive mapping program called MapVision for online service requests.





3. Employee Continuing Education (1.) Courses

<u>Date</u>	<u>Course</u>	<u>Instructor</u>
7-Jan	Universal Waste Training	Ms. P. Greene
	DOT Training	Ms. P. Greene
	Barrier Treatment Application	Mr. M. Smith
	HAZWOPPER Hazardous Communication	Mr. R. Weaver
	Pesticide Classification & Current Marketing Situation	Dr. R. Xue
13-Jan	VCMSD and Pocket PC's	Mr. R. Weaver
	Venomous Snakes of Florida	Mr. S. Gott
	Chemical Hygiene & Lab Safety	Mr. R. Weaver
	Medical and Veterinary Entomology	Mr. A. Holt
21-Jan	Sexual Harrassment for Employees	Mr. A. Holt
	United Health Care Q & A	Mr. D. Lohr
	Aquatic Insect Taxonomy & Habitat Ecology	Mr. A. Holt
	Sexual Harrassment for Supervisors	Mr. A. Holt
4-Feb	Biomedical Waste & Chicken Program	Mr. R. Weaver
	PPE (Personal Protection Equipment)	Mr. K. Daniel & Mr. F. Allen
	HAZWOPPER Heat Illness	Mr. R. Weaver
11-Feb	Introductory Mosquito Identification	Ms. W. Qualls & Mr. M. Smith
	Safety Manual	Mr. R. Weaver
	Terminology of toxicity of pesticides	Dr. R. Xue
18-Feb	Hurricane Safety Procedures & Protocols	Ms. L. Stoten
	Map Vision-Possible VCMS Integration	Mr. B. Reynolds
	Advanced Mosquito Identification	Ms. W. Qualls & Mr. M. Smith
20-Feb	Fire Safety	Mr. P. Kendrick
	CPR (Cardiopulmonary Resuscitation)	Mr. R. Fox
	Behaviorial Mosquito Terminology	Dr. R. Xue
25-Feb	Introduction to Health Living	Ms. P. Greene
	Activities for Life	Ms. W. Qualls
	Cardiovascular Disease Risks & Skin Cancer Prevention	Mayo Clinic Personnel
	AMCD Walking/Weight Loss Challenge	Ms. P. Greene
	Current Hurricane Safety Procedures	Mr. J. Boone





<u>Date</u>	<u>Course</u>	<u>Instructor</u>
31-Mar	Mosquito-borne arboviral diseases in the U.S.A	Dr. Lyle Petersen
	" Rift Valley Fever Epidemics in Egypt: The Entomologic Investigations"	Dr. Hanafi A. Hanafi
	Behavioral response of female mosquitoes to various synthetic and botanical compounds	Dr. Theeraphap Chareonviryyaphap
	"First 5 years of the DWFP Program to develop new and improved vector control methods and materials"	Dr. G.B. White
	"Navy Entomology Center of Excellence and the Deployed War Fighter Protection Program"	Dr. George Schoeler
	Efficacy of Commercial Mosquito Traps in Capturing Phlebotomine Sand Flies in Egypt"	Dr. David Hoel
	"Environmental stewardship along Florida's Indian River Lagoon"	Mr. Doug Carlson
	Host-seeking behaviors and trap development	Dr. Dan Kline
	Research on topical repellents and repellent-treated uniform for the US military	Dr. Uli. Bernier
	Finding the resting site of adult Phlebotomine sand flies in a village in AQualls, Egypt	Dr. Jerry Hogsette
	Insecticide-impregnated mosquito bed nets against mosquito-borne diseases in China	Dr. Tong-Yan Zhao
	Efficacy of ULV applications of BTi on container breeding mosquitoes	Mr. James C. Dunford
1-Apr	Biology of mosquito – borne disease in Florida	Dr. Jonathan Day
	"Temporal patterns of mosquito landing on human hosts: implications for vector detection, monitoring, and control"	Dr. DR Barnard
	A review of colored lights used for mosquito trapping	Dr. Lee Cohnstaedt
	Impact of insecticides on adult mosquito behaviors	Ms. Wasana Boonyuan
	Aerial application and influencing factors	Dr. Jane Bonds
	Aerial application of water-based insecticide against mosquitoes	Miss Alex Chaskopoulou
	Fly control research update	Mr. Joe DiClaro
	Evaluation of mosquito larvicides	Mr. Ryan Allen



Date

Course

Instructor

Overview of UF Whitney laboratory research projects about vector mosquito larval physiology/molecular biology for possible control	Dr. P. Linser
Sindbis virus research update	Dr. Doria Bowers
Update about DACS' mosquito control programs	Mr. M. Page
An update of mosquitoes / disease surveillance in Jacksonville Mosquito Control	Ms. M. Clark
EEE surveillance in Volusia County	Mr. J. Stewart
Mosquito plant feeding behaviors & survival	Dr. R. Xue
Overview of Pasco County MCD program	Mr. D. Moore
Traps for container-inhabiting mosquitoes	Dr. P. Obenatuer
Effect of DUET and its components on excitation behavior of <i>Culex quinquefasciatus</i>	Dr. G. Clark
Factors affecting pesticide residues on vegetation	Dr. S. Allan
Arbovirus surveillance in Lee County MCD	Mr. J. Burgess
AMCD's public and legislation education	Commissioner J. Moeller
Behaviors and response to repellents in Sindbis virus-infected mosquitoes	Ms. W. Qualls

2-Apr

Aerial application for mosquito control in St. John County	Mrs. K. Gaines
Mosquito sentinel traps	Dr. P. Kuafman
DUET's laboratory and field evaluations and its non-target impacts	Ms. W. Qualls
Update about non-target study	Dr. H. Zhong

4-May

Mosquito Biology	Ms. W. Qualls
Larval Habitats	Mr. M. Smith
Other Insects of Medical Importance	Mr. A. Holt
Aquatic Insect Biology	Mr. A. Holt
Mosquito Taxonomy & Identification	Ms. W. Qualls & Mr. M. Smith
VCMS and Pocket PC's	Mr. R. Weaver

5-May

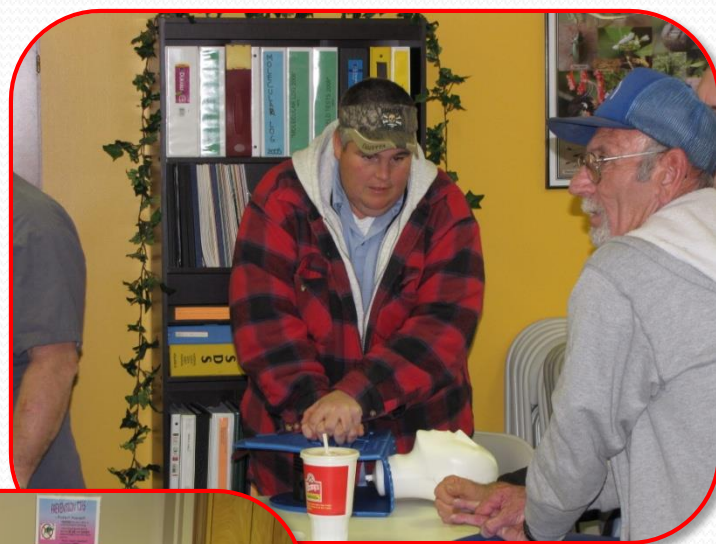
Larvicide Application/ Equipment Tour	Mr. D. Taylor
CDC Traps & Attractants	Mr. M. Smith
ULV Equipment	Mr. J. Wynn & Mr. M. Smith
Customer Service and Service Request	Ms. K. Gaines
Pesticide Label & Application Regulation	Mr. R. Weaver
Universal Waste	Ms. P. Greene
Source Reduction	Mr. A. Holt
Environmental Safety & Regulation	Ms. P. Greene

6-May

How to Conduct a Landing Rate Count?	Dr. R. Xue
disease Surveillance (How to Bleed Chickens?)	Ms. W. Qualls
AMCD's Employee Handbook & Policy	Ms. P. Greene
IRMCD Larviciding Program	Mr. Morel Jules
HAZWOPPER Heat Illness	Mr. R. Weaver
Mosquito Behavior & Ecology	Ms. W. Qualls




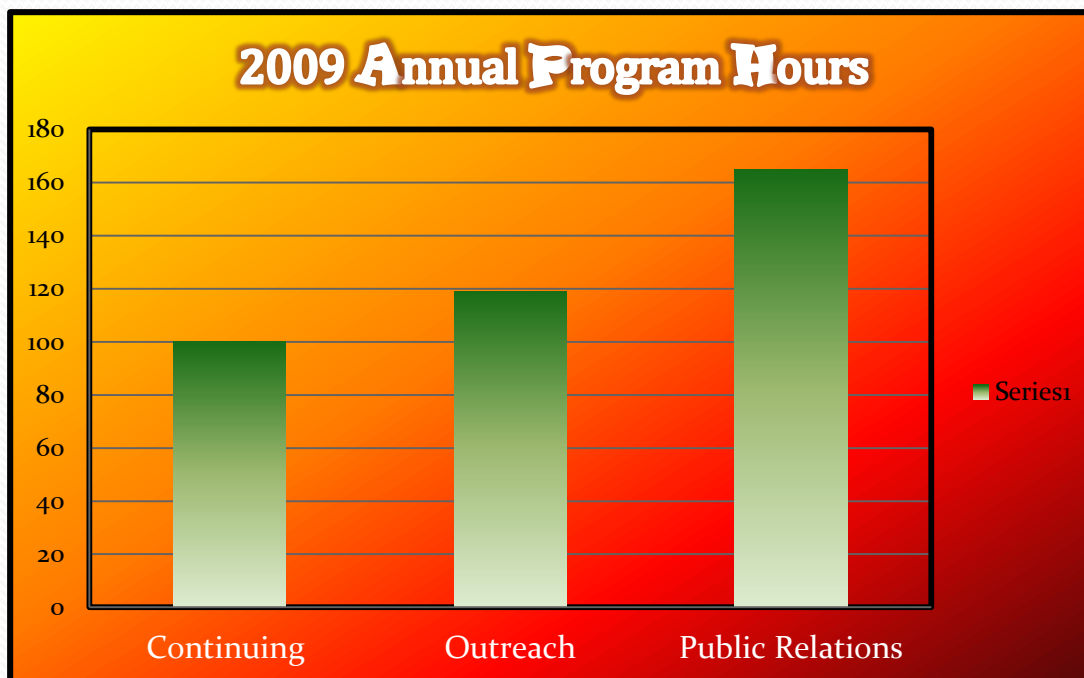
<u>Date</u>	<u>Course</u>	<u>Instructor</u>
7-May	IPM Principle & Strategy	Dr. R. Xue
	Adulticide Formulation and Application	Mr. J. Boone
	Mosquito-Borne diseases	Dr. R. Xue
	HAZWOPPER Hazardous Communication	Mr. R. Weaver
	Sexual Harrassment	Mr. A. Holt
	Biomedical Waste & Chicken Program	Mr. R. Weaver
	PPE (Personal Protection Equipment)	Mr. R. Weaver
12-Nov	Lecture about resistance and resistance management	Dr. J. McAllister
	Mosquito adulticide usage in Florida	Dr. P. Jiang
	Resistance surveillance in St. Johns County, Florida	Ms. W. Qualls
	Dibrom resistance situation in Jacksonville, Florida	Mr. M. Clark
	Integrated pest management discussion	Dr. R. Xue
	Hands-on training for resistance test	Dr. J. McAllister





Overall Annual Program Statistics

-  Public Relation: **33** Events for **165** hours.
-  Continuing Education: **17** days of trainings for **100** hours.
-  Outreach Education: **119** hours; **1118** students; **43** days; **57** classes.



(2.) Symposiums, Workshops & Professional Meetings:

March 31-April 2, 2009. 6th Arbovirus Surveillance and Mosquito Control Workshop (Organizer: Dr. Xue).

April 5-9, 2009. AMCA Annual Meeting Symposium, New Orleans, LA (Behavior and Operation Control)(Organizers: Dr. Xue & Dr. Kline).

October 11-16, 2009. 5th International Congress of Vector Ecology's Symposium, Turkey (Sugar and Plant Feeding and Possible for Control)(Organizers: Dr. Xue and Dr. Muller).

November 8-11, 2009. FMCA Annual Meeting Symposium, Tampa, FL (IPM/IMM/IVM)(Organizer: Dr. Xue).

November 12, 2009. Pesticide Resistance and Management Workshop, AMCD (Organizer: Dr. Xue).



(3.) Presentations at Professional (Community) Meetings/Associations/Clubs:

“Vegetation barrier treatments against mosquitoes in St. Johns County.” The FMCA Dodd Short Course; Ocala, FL; January 26-29, 2009 (Dr. Xue).

“AMCD benefits from the applied research”. The FMCA Dodd Short Course (Director Section); Ocala, FL; January 26-29, 2009 (Dr. Xue).

“Introduction to symposium on behaviors and operation control.” AMCA 75th Annual Meeting; New Orleans, LA; April 5-9, 2009 (Dr. Xue).

“Plant feeding and survival in adult mosquitoes”. AMCA 75th Annual Meeting; New Orleans, LA; April 5-9, 2009 (symposium paper, Dr. Xue).

“Sindbis-infected *Aedes aegypti* behavioral response to repellents and attractants.” AMCA 75th Annual Meeting; New Orleans, LA; April 5-9, 2009 (symposium paper, Ms. Qualls).

“Insecticide-impregnated bed nets for the control of mosquito-borne disease and their impacts on blood feeding behavior.” AMCA 75th Annual Meeting; New Orleans, LA; April 5-9, 2009 (symposium paper, Dr. Zhao & Dr. Xue).

“Laboratory and field evaluation of DUET against field collected *Aedes albopictus*, *Aedes taeniorhynchus*, *Psorophora columbiae*, and *Culex quinquefasciatus*.” AMCA 75th Annual Meeting; New Orleans, LA; April 5-9, 2009 (symposium paper, Ms. Qualls).

“Overview of barrier spray against mosquitoes in St. Johns County.” AMCA 75th Annual Meeting; New Orleans, LA; April 5-9, 2009 (symposium paper, Dr. Xue).

“Aerial application against mosquitoes in St. Johns County.” AMCA 75th Annual Meeting; New Orleans, LA; April 5-9, 2009 (Mrs. Gaines).

“Mosquito plant feeding behaviors and survival.” 6th Arbovirus Surveillance and Mosquito Control Workshop; AMCD; March 31-April 2, 2009 (Dr. Xue).

“Behaviors and response to repellents in Sindbis virus-infected mosquitoes.” 6th Arbovirus Surveillance and Mosquito Control Workshop; AMCD; March 31-April 2, 2009 (Ms. Qualls).

“Aerial application for mosquito control in St. Johns County.” 6th Arbovirus Surveillance and Mosquito Control Workshop; AMCD; March 31-April 2, 2009 (Mrs. Gaines).

“AMCD’s public and legislation education.” 6th Arbovirus Surveillance and Mosquito Control Workshop; AMCD; March 31-April 2, 2009 (Commissioner Moeller).

“Duet’s laboratory and field evaluation and it’s non-target impacts.” 6th Arbovirus Surveillance and Mosquito Control Workshop; AMCD; March 31-April 2, 2009 (Ms. Qualls).

“Welcome and introductory address.” Anastasia Mosquito Control District’s 60th Year Celebration; April 2, 2009 (Commissioner Bequette).



“AMCD history overview.” Anastasia Mosquito Control District’s 60th Year Celebration; April 2, 2009 (Former Director Mr. Mickler).

“AMCD’s future at a glance.” Anastasia Mosquito Control District’s 60th Year Celebration; April 2, 2009 (Commissioner Moeller).

“AMCD’s overall accomplishments.” Anastasia Mosquito Control District’s 60th Year Celebration; April 2, 2009 (Former Commissioner Hummel).

“Welcome and introduction.” The International Forum for Surveillance and Control of Mosquitoes and Mosquito-Borne Diseases; Beijing, China; May 25-28, 2009 (Dr. Xue).

“Mosquito plant feeding, survival, and potential application for control.” The International Forum for Surveillance and Control of Mosquitoes and Mosquito-Borne Diseases; Beijing, China; May 25-28, 2009 (Dr. Xue).

“Legislation and mosquito control in Florida.” The International Forum for Surveillance and Control of Mosquitoes and Mosquito-Borne Diseases; Beijing, China; May 25-28, 2009 (Commissioner Moeller).

“disease and mosquito population surveillance in Florida.” US/China CDC’s Arbovirus Surveillance Workshop; Qinghai, China; July 13-16, 2009 (Dr. Xue).

“Mosquito-borne disease surveillance and control.” Hainan CDC; Haikou, China; July 17-19 (Dr. Xue).

“Mosquito control and future plan.” Kiwanis Club, St. Augustine, July 30 (Commissioner Browning)

“Plant feeding, nutrition and survival in adult mosquitoes.” 5th International Congress of the Society for Vector Ecology; Turkey; October 11-16, 2009 (symposium paper, Dr. Xue).

“Exhausting and memory behavior during repellent test.” 5th International Congress of the Society for Vector Ecology; Turkey; October 11-16, 2009 (symposium paper, Dr. Xue).

“Anastasia Mosquito Control District’ service scope and control of mosquito-borne diseases.” St. Johns County legislation Day, St. Augustine, November 4, 2009 (Commissioner Bequette).

“Definition, terms and prospects of IPM/IMM/IVM.” The FMCA Annual Meeting; Tampa, FL; November 8-11, 2009 (Dr. Xue).

“Diel activity pattern of major species of mosquitoes in St. Johns County, Florida.” The 81st Annual Meeting of the FMCA Annual Meeting; Tampa, Florida; November 8-11, 2009 (Dr. Xue & Mr. Smith).

“Unusual population increase and aerial spray in 2009.” The 81st Annual Meeting of the FMCA Annual Meeting; Tampa, FL; November 8-11, 2009 (Mrs. Gaines).

“Barrier spray at St. Johns Golf Course.” The 81st Annual Meeting of the FMCA Annual Meeting; Tampa, FL; November 8-11, 2009 (Ms. Qualls).

“AMCD’s 1st Annual Middle School Science Summer Camp.” The 81st Annual Meeting of the FMCA Annual Meeting; Tampa, FL; November 8-11, 2009 (Mr. Holt).

“Resistance surveillance in St. Johns County, Florida.” Pesticide Resistance and Resistance Management Workshop, AMCD; St. Augustine, FL; November 12, 2009 (Ms. Qualls).



Applied Research

Efficacy assessment of aerial spraying (helicopter) of ANVIL 10 + 10 and Dibrom for adult mosquito control in June, 2009.

AMCD Board of Commissioners decided to conduct the study of aerial spraying with ANVIL 10 + 10 and Dibrom for treatment of hot spots since 2007. In late May, 2009, 20 inches of rain fall countywide resulted in an unusual increase in mosquito populations (> 2000 service requests within 2 weeks, high landing rate counts, and high number of mosquitoes caught by CDC traps). During the aerial operation, we treated 3 hot spots with ANVIL 10 + 10 and treated 3 other hot spots with Dibrom. We placed mosquito cages in the hot spot areas before spraying and collected the cages to check mosquito mortality after the aerial spraying. ANVIL 10 + 10 at 0.6 o.z. per acre resulted in <10% mosquito mortality, no reduction in service requests, and no reduction in numbers of LRC/CDC trap collections after treatment. Dibrom at 0.5 o.z. per acre resulted in about 40% mosquito mortality, a reduction of 40-70% service requests, and a reduction in the numbers of LRC/CDC trap catches. In the northwest area, even the Dibrom spray at 0.5 o.z. per acre did not result in good control due to canopy and vegetation impact. We increased the application rate to 0.6 o.z. per acre for Dibrom, reduced spraying speed, and received satisfying results. If we did not conduct this research to determine the efficacy of our aerial application, we could have wasted about \$100,000 tax payers money.





Barrier treatment in St. Johns Golf Course, June-October 2009

St. Johns Golf Course is located off of South SR 207 and is just west of I-95. The SJGC is about 340 acres surrounded with fresh water swamps that produce large numbers of nuisance mosquitoes. This mosquito production generated many service requests & complaints. The purpose of the barrier treatment was to reduce the pesticide application and operation costs associated with such a large area. We selected the Golf Course for the barrier spray treatment or target treatment (spraying on the vegetation around the golf course side), the Coquina Cross subdivision for regular ULV spraying, and a control site across the street from the two treatment sites. Mosquito trapping using CDC light traps and LRCs before and after barrier treatment was evaluated until the mosquito population represented that of the control site. The results showed that the barrier treatment lasted for 1-2 months and reduced the pesticide application time, amount of pesticide used, and overall operation costs compared to regular ULV spraying and control. Also, the barrier treatment benefits the environment and reduces the impact on nontargets. We will adopt the method as a part of our District ground operations next year.





Diel activity patterns and ULV spraying impacts, August-October 2009

This project was combined with the DACS population surveillance project. We used 2 rotator traps to collect adult mosquitoes from Elkton, Florida (SW area) during different times of the day. The purpose was to figure out the peak activity time of local adult mosquitoes and use that information to determine the best time for ULV spraying. We conducted the ULV spraying before, during, and after the peak activity to figure out whether the spraying times impact pesticide efficacy and control results. The results showed that the most efficacious spraying times were from 7:30pm to 9:30pm. The ULV spraying does not affect mosquito peak activity time, but does reduce mosquito populations when applied during peak activity time. The study benefits our management for regular ULV spraying.

Commercially available natural repellent evaluation, September 2009

Because there are many natural repellent products on the market, many taxpayers ask for advise on selecting natural repellents. The purpose of the field tests were to have 1st hand data on the efficacy of the natural products and to give the taxpayers or industries good suggestion. We ran the testing in Elkton for 2 nights (4-5 hours per night). The results showed that Repel Lemon Eucalyptus provided longer protection against mosquito bites work better than Bite Blocker products (soybean oil).





Administration/Supply

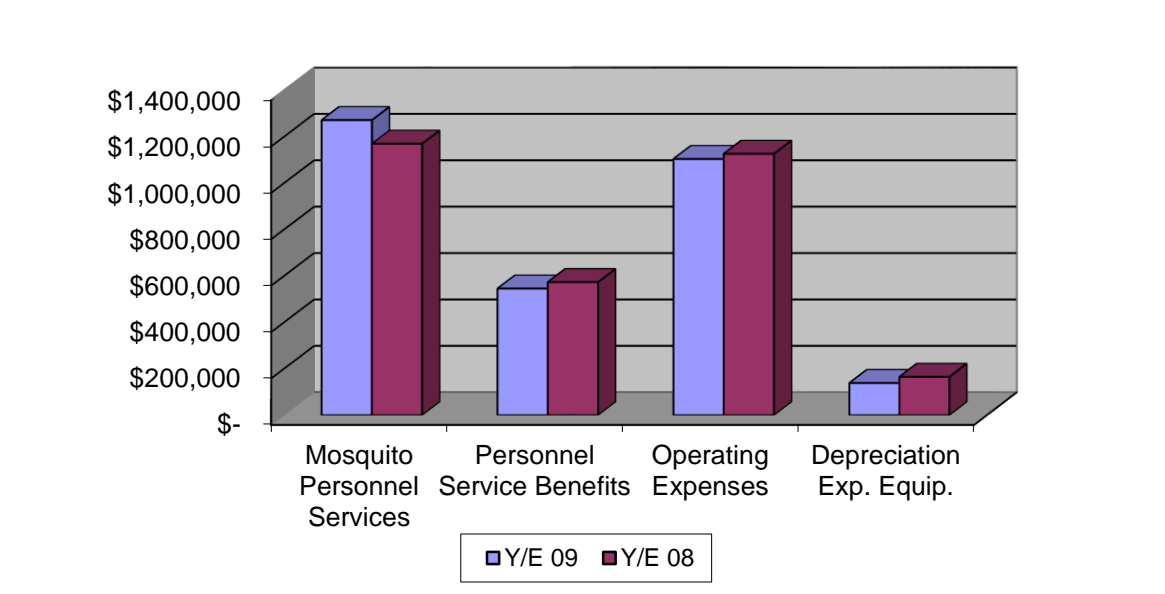
1. **Budget:** Staff prepared the 09/10 budget and millage rate calculation. The final budget and millage rate of 0.1325 was approved by the Board at the final public hearing on September 24, 2009. Ms. Klein continued as AMCD's part time CPA and Auditor. The accountant and the VCMS Coordinator completed all monthly DACS financial, operation, and chemical usage reports on time.
2. **Supply:** Staff prepared for 24 Board meetings/workshops, including Board books, meeting minutes, documentation, meeting rooms, and equipment/facility. Staff & employees fulfilled more than 3,288 service requests.
3. **Insurance:** The health insurance carrier for the year was provided by United Health Care. Dental and life insurance was continued through Metropolitan and Principal respectively. Staff cooperated with all requests from our insurance broker for these coverage's.
4. **Inventory:** Annual physical inventory, as well as the monthly tire and chemical inventory, were completed on a regular basis. All surplus vehicles and small equipment have been sold at our local county auction.
5. **Policy:** The pay plan, sick/annual leave payout, records management program, hot zone definition and other policies were prepared and approved by our Board of Commissioners.
6. **Contract Services:** AMCD renewed the property lease with the town of Hastings; emergency aerial spraying with Clarke Mosquito Control; and inspection, larviciding and aduclticing operations with Southern Helicopter.
7. **Auditors:** Annual financial information has been given to the District Auditor who will compile and report to the Board during their February meeting. District environmental compliance and safety has been improved. In the fall, an inspection by DACS about aerial spray was conducted resulting in the fact that AMCD has not sprayed any conservation lands. Semi-annual in-house environmental inspections have been performed every six months. Contamination has been detected at our Ponte Vedra property and a proper environmental clean-up has been scheduled.
8. **Equipment:** AMCD built 4 ULV (larvicide) units for 4 new trucks.
9. **Facility:** The county approved AMCD's application for the rezoning of AMCD's property at EOC drive for the new building. PQH was hired for the new base stations design and floor plan. The proposed final design by PQH has been revised several times under the planning committee.
10. **Maintenance:** Employees & the mechanics performed calibrations on all ULV machines, completed necessary building repairs and any other required maintenance before the mosquito season began.
11. **Safety:** The safety committee held 14 meetings this year. No serious accidents occurred in 2009. This years District safety award resides at our South station in Hastings, FL.
12. **Personnel:** Annual employee performance evaluations were completed by the end of February 2009. Several employees reach specific anniversary marks such as 5, 10, 15, 20 and 30 years. Mike Smith received the "Outstanding Service Award" in December 2009. Seven seasonal inspectors worked for AMCD from May through October and three part time employees for 2-3 months. The following employees experienced a position title change: Whitney Quall's – Biologist; Richard Weaver – Data Manager. Loren Smith retired in March 2009 after a full 6 years of service.



Appendix

1. Financial Report

FINANCIAL STATEMENTS -- LOCAL FUND -- YEAR END 2009	
REVENUE :	
PROPERTY TAXES	\$3,019,848
INTEREST INCOME	37,542
MISC/ OTHER	5,546
TOTAL REVENUE :	\$3,062,936
EXPENDITURES :	
PERSONAL SERVICES	1,271,646
PERSONAL SERVICE BENEFITS	545,567
OPERATING EXPENSES	245,584
AERIAL SPRAYING	196,601
INSURANCE	50,299
TRAVEL/ UTILITIES/ SERVICES	103,696
PRINTING & PROMOTIONAL	43,949
MAINTENANCE & REPAIRS	66,489
MATERIALS & SUPPLIES	79,966
GASOLINE, OIL & LUBRICANTS	66,395
CHEMICALS & SOLVENTS	199,058
CAPITAL OUTLAY	223,167
TOTAL EXPENDITURES	\$3,092,417
BEGINNING CASH BALANCE:	5,442,924
ENDING CASH BALANCE:	\$5,425,166
CARRY FORWARD TO 09/10	5,425,166
FINANCIAL STATEMENTS -- STATE FUND -- YEAR END 2009	
REVENUE	
STATE GRANT	\$37,023
EXPENDITURES	
CHEMICAL PURCHASES	52,089
BEGINNING CASH BALANCE:	26,288
ENDING BALANCE:	\$11,222





2. Operations Summary

OPERATIONS SUMMARY IN 2009

Operations	Hours
Administrative	10,259.50
Adulticide	2,117.70
Air Program	94.8
Assist	954.7
Bio-control	77.7
Building Maintenance	4,363.20
Calibration	2.6
Chemical	302.1
Chicken Survey	2,122.60
Computer Repair	61.3
Dry Ice	3.5
Equipment Maintenance	491.5
Field Experiments	349.8
Filling Truck	80.2
Gas	52.9
Grounds Work	966
Hand Fogging	55.3
Identifications	415.9
Insectary	608.9
Inspections	12,204.10
Inventory	455.8
Lab Experiments	1,449.80
Larvicide	3,538.30
Light Traps	1,460.40
Mech. Veh/Equ.m	1,789.50
Meeting	3,848.40
Mosquito Pool	5.00
Office	2,062.80
Other	158.10
Pickle Jar Trap	13.10
Public Relation/Ed/School	704.80
Scientific papers & pre	692.80
Special Projects	90.80
Supervisory	4,484.90
Tire	143.10
Trails	86.90
Training	3,750.50
Travel	690.10
Vehicle Maintenance	746.00
Water	47.60
XCL Fog min pay	14.00
Admininstrative Leave	22.90
Annual Leave	3,892.00
Holiday	2,992.00
L.W.P.	54.00
Sick Leave	2,466.30
Sick/Personal Leave	212.00
TOTAL LEAVE	9,639.10
TOTAL HOURS	71,456.00
TOTAL WORK	61,816.90



Committee Members

Chair: Dr. Rui-De Xue, *Executive Director*

Members: Ms. Priscilla Greene, *Assistant Director*
Mr. Richard Weaver, *Data Manager*
Ms. Whitney Qualls, *Biologist*
Ms. Charolette Hall, *Administrative Office Assistant*

Editor: Mr. Adam Holt, *Education Specialist*

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