

# **ANNUAL PROGRAM REPORT 2006**



**ANASTASIA MOSQUITO CONTROL DISTRICT  
ST. JOHNS COUNTY, FLORIDA**

**Annual Program Report, 2006**  
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## **Mission & Goals**

To serve and protect the St. Johns County residents through the prevention and control of mosquitoes and mosquito-borne diseases.

To reduce/control both pestiferous and disease-carrying mosquito populations to a low threshold using a variety of methods (Integrated Pest Management) to minimize potential impacts on people and the environment.

To become recognized as one of the leading mosquito control districts.

## Note from the District Director

Anastasia Mosquito Control District (AMCD) of St. Johns County, Florida is a special independent district and a professional service organization. The district, district director and employees are required to hold an active Public Health Pest Control License issued by the Department of Agricultural and Consumer Service (DACS). Also, all licensed employees are required to earn continuing education credits (CEUs).

AMCD is governed by a Board of Commissioners which consists of 5 members. The Board hires a Director to run the AMCD daily business operations, an Attorney and an Auditor/CPA are retained to advise the Board about legal items and provide financial analysis. The Board of Commissioners sets the policies and makes the major decisions, and the Director implements the Board's policy and decisions.


The programs are the guidelines for AMCD's daily operation. We are here to support the programs. In December 2005, the Board of Commissioners decided to conduct a program review. From May 31 to June 1, 2006, a review committee including 9 District Directors and members from such organizations as: DACS, FKMCD, Collier CMCD, Leon CMCD, Jacksonville MCD, Manatee CMCD, USDA/CMAVE, FAMU/PHEREC, and Hernando CMCD attended the program review at AMCD. They reviewed AMCD's documents, including program review book, annual program report 2005, and financial report, listened to District Director and 3 staff's presentations, interviewed each Commissioner, Supervisor, Administrative staff, some employees, and visited each station. The review committee agreed that AMCD had several strong programs, such as surveillance, customer service, applied research, and education programs, however, the aerial program and administrative & supply program were weak because of no aerial program or aircraft and all new administrative staff. Overall, 4 members thought AMCD had excellent programs, 4 members thought AMCD had good programs, and 1 member had no comment due to not visiting the district. The committee proposed that AMCD should develop an aerial program by purchasing a helicopter, supported centralization, and increase the budget and the number of employees.

In 2006, the Board of Commissioners and all employees worked very hard to accomplish each of our program's goals. We accomplished a significant level in customer/professional service, surveillance, and operational control programs, especially, in the education and applied research programs. We provided 20 CEUs to our employees and other districts' employees through the 3<sup>rd</sup> Mosquito control workshop and Permethrin product symposium. The applied research guided the Board's decision to purchase effective and economic adulticides, reduce the quantity of malathion used due to problems with resistance, checked the efficacy of mosquito adulticide in spray truck tanks during mosquito off season ( 4-6 months of storage). This research led to the correction and improvement of the operational efficiency.

After the program review, AMCD concentrated on developing an aerial program and centralization. After 4-5 months of discussion, the Board decided to use reserved money to purchase a helicopter to enhance aerial application. The Board decided to conduct a customer survey for the merging of the Ponte Vedra substation to the North Station in June, and AMCD published the survey in a local newspaper and sent more than 1000 letters to Ponte Vedra residents. The majority of Ponte Vedra residents agreed to the merging plan. At the November Board meeting, the Board decided to close the Ponte Vedra substation and merge with the Northwest station to form the North Station. The two substations smoothly merged on December 15, 2006. All employees supported the merger and were happy with their transfer and job re-arrangement assignment. The district safety program ran smoothly and the number of accident reports was at its lowest in comparison with the last few years. Due to dry weather conditions in 2006, the adulticide and larvicide application were greatly reduced.

AMCD adopted and used new technology and increased its scientific methods to provide excellent customer and professional services at a low millage rate. Currently, AMCD is doing well and we are working together in order to achieve our mission and reach our goals. I am appreciative and offer a "Thank You" to all the Board members, employees, contractors, and cooperative organizations for your support and service to AMCD's programs.

We welcome suggestions and promote participation from the citizens of St. Johns County or any concerned party.



Dr. Rui-De Xue  
District Director



## Report from the Board of Commissioners

February 5, 2007

Dear Board Members and All Employees:

Thanks for giving me the opportunity to serve the Board, the employees and the taxpayers as the Chairperson, Board of Commissioners of Anastasia Mosquito Control District of St. Johns County in 2006. As the Chairperson, I have spent a lot of time with the District Director, Administrative Office Staff, and the District's Attorney concerning AMCD's business in 2006. We held a total of 15 Board meetings, including 2 special meetings one for salary adjustment (May 4), and a final public hearing for the budget (September 28). During the regular and special meetings, we held 3 workshops, including Budget, TRIM (September 28), and Aerial application in Florida (October 12). Under the Board's direction and leadership, and the Administrative Staff and all the employee's efforts and support, AMCD made a lot of accomplishments and had an enjoyable & peaceful year.

The year of 2006 was a mid term election year. Commissioner Mrs. Mary Willis retired after 20 years service, and Commissioner Mrs. Beth Bowen retired after 12 years of service. Mrs. Jeanne Moeller and Mr. John Sundeman were elected as the new Commissioners for seat 2 and 4. Also, Mrs. Linda Wampler was appointed as the new Commissioner for seat 5 on December 19, 2006 due to the untimely death of Mrs. Rita Cornwell. It was very sad that Vice-Chairperson, Commissioner Mrs. Rita Cornwell passed away on September 12, 2006. During the election years, 4 candidates campaigned and debated several issues, including purchasing a helicopter, centralization, applied research, how to save tax money and promote AMCD in the community. Additionally, the Board approved the budget and reduced the millage rate from 0.1550 in 2005 to 0.1500 in 2006.

After AMCD's program review, the Board of Commissioners decided to purchase a helicopter and develop AMCD's aerial program. The Board approved the merger of the Ponte Vedra substation to Northwest substation in order to form the North Station after performing a consolidation study.

The Board made several new policies and changed two new policies, including the hiring policy and procedure, the discipline policy, research policy, changed new employee probation from 3 months to 6 months, and annual leave request of 2 days or less from 30 min before the start to 3 days.

The Board approved a contract with the land planner, Mrs. Karen Taylor to work on the central station rezoning and contracted with B. & G. Company for mosquito adulticide supply, switched AMCD's uniform service to Cintas and changed the auditor/CPA contract. The trees at the new central station location have been cut and sold after the Board's approval of a contract. The Board terminated the contract with Rozier's Oil Company for SW gasoline supply.

The Department of Entomology and Surveillance has been formed and all surveillance projects and programs have been centralized at the base station. A portion of the Malathion Inventory has been salvaged due to high resistance. The permethrin decomposition in adulticiding truck tanks has been identified and corrected. The efficacy of three adulticiding permethrin products has been tested in the laboratory and field. The most effective and cheapest product, Aqua Luer has been recommended and approved as our new mosquito adulticide.

AMCD held the 3<sup>rd</sup> Arbovirus surveillance and mosquito control workshop, a permethrin product symposium, and many employee training sessions have been conducted in 2006. More surveillance, public education and public relations events were conducted. There were only 3 sentinel chickens that tested positive for EEE and WNV.

Overall, AMCD is in good shape and the majority of the employees are happy and satisfied with the programs, and the Board, and administrative services. Thanks for your support.

Sincerely,

Mrs. Barbara Bosanko, Chairperson, 2006

**Board of Commissioners & Appointed Officers**

Mrs. Emily B. Hummel, Commissioner  
Mrs. Barbara H. Bosanko, Chairperson  
\*Mrs. Rita J. Cornwell, Vice Chairperson  
(Passed away on September 12, 2006)  
Mrs. Beth R. Bowen, Secretary-Treasurer  
Mrs. Mary T. Willis, Commissioner



***Appointed Officers by the Board***

Dr. Rui-De Xue, District Director  
Mr. Geoff Dobson, District Attorney  
Randolph Sandy, CPA

### Full Time Personnel

Administration		Hire Date
Director	Dr. Rui-De Xue	4/14/03
Education Specialist	Gina LeBlanc	9/26/05
Accountant	Brooke Tedford	12/12/05
Administrative Office Assistant	Ken Daniel	9/26/05
Attorney	Geoffrey Dobson	3/28/02
<b>Department of Entomology</b>		
Entomologist	Dr. Rui-De Xue	4/14/03
Inspector IV	Mike Smith	11/05/84
Biological Technician	Whitney Qualls	3/20/06
VCMS Coordinator	Richard Weaver	4/14/03
Administrative Office Assistant	Ken Daniel	9/26/05
<b>Base Station</b>		
Supervisor	Kay Gaines	8/07/00
Inspector/Sprayers	Jacque Bolduc	10/09/00
	Tom Downey	3/1/06
	Greg Griggs	4/15/91
	Cathy Hendricks	7/08/02
	Patrick Kendrick	4/07/03
	Loren Smith	3/18/02
	Elaine Scanzani	3/20/02
	David Strickland	3/10/97
Mechanic	James Wynn	3/04/96
<b>North Station</b>		
Supervisor	John Boone	4/17/00
Inspector/Sprayers	Jimmy Baer	4/08/96
	Michelle Davenport	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
<b>South Station</b>		
Supervisor	David Taylor	2/28/94
Inspector/Sprayers	Freddie Allen	7/08/02
	Steve Solana	4/24/00
	Steven Steele	11/1/05



### Part- Time/Seasonal Personnel

Part-Time		Dates of Service
Receptionist	Alyce Orlando	6/5-11/30
Education Intern	Aubrey Skillman	6/5-8/20
Biological Technician Intern	Emma Bevers	5/30-7/21
Fogger (As-needed)	Peter Szilva	N/A
Fogger (As-needed)	John Rasmussen	N/A
<b>Seasonal</b>		
Entomologist	Abimbola Amoo	7/10-12/29
Inspector/Sprayer	Anthony Clark	6/5-6/16
Inspector/Sprayer	Dennis Thierrien	6/29-11/21
Inspector/Sprayer	James Shepard	7/31-8/14
Inspector/Sprayer	Michael Parzych	6/5-11/30
Inspector/Sprayer	Rick Stockley	6/22-11/30
Inspector/Sprayer	Walter Hedge	6/5-11/30
Maintenance	Stephen Bayne	7/11-10-3

## Customer & Professional Service

### 1. Service Requests

All service requests are entered into the Vector Control Management System (VCMS), which is a database used by the district to keep track of all service requests, chemical use, employee time records, landing rates, light traps and other statistical data. In 2006, 580 service requests were received. However, due to dry weather conditions in 2006, the number of service requests was much lower than in 2005.

Most service requests are called in, some are received by the Inspector/Sprayers while on their route, others are received via e-mail, no matter how a service request is received it is entered into the computer and is assigned to an Inspector/Sprayer for that area. Each Inspector/Sprayer has a Pocket Computer assigned to them. This allows them to view the service request in the field.



Service requests are taken care of as soon as possible. The Inspector/Sprayer will go to a service request and check the area for standing water and containers that may be holding water. If standing water is causing the problem, the Inspector/Sprayer will treat the area as needed. If containers are causing the mosquito problem, the Inspector/Sprayer will empty the container if it is not too large. If they are not able to empty the container they will put a *Bacillus thuringiensis israeliensis* briquette or liquid to stop the mosquitoes from breeding for a short time and let the owner know what is causing the mosquito problem and what they can do to help eliminate the problem. The Inspector/Sprayer will always try to speak to someone about the mosquito problem they are having. If no one is home they will leave a door hanger to explain what they found and recommend prevention tips.

If the service request is for Adulticiding (fogging), the area will be checked for standing water and a landing rate count will be done. A landing rate count is where the Inspector/Sprayer will stand for one minute and count how many mosquitoes land on them, we need five or more in a minute to justify adulticiding.

Adulticiding is done between 3:00 am to 6:00 am or in the evenings from 6:00pm to 10:00 pm. Unless the person requests to speak to the Inspector/Sprayer, they may not be aware that we have taken care of their request.

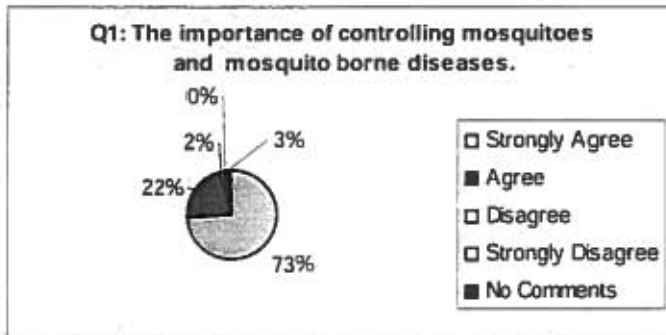
State and federal regulations require that we have justification before the use of any pesticides. Service requests are part of our justification process for adulticiding. They also help to give us an idea of what is going on in different areas of the county.

## 2. Customer Satisfaction

In the fall of 2006, a customer service satisfaction survey was sent out to five hundred randomly selected St. Johns county residents. The random recipients of the survey were taken from the Bellsouth phone book and of the five hundred sent out, one hundred and twenty seven were completed and returned. (127/500 surveys received (25.4%)). The survey consisted of six questions, which dealt with the mosquito population, our mosquito control staff, the efforts we make in order to control mosquito-borne diseases, the information we provide and the timely response to service requests. The overall results are as follows.

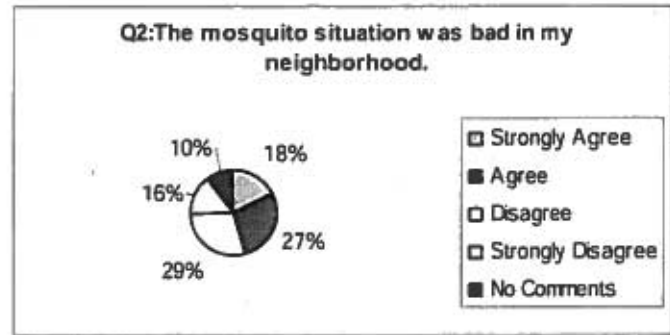
**Q1: The importance of controlling mosquitoes and mosquito borne-disease diseases.**

73% Strongly Agree, 22% Agree, 2% Disagree, 0% Strongly Disagree, 3% No Comments



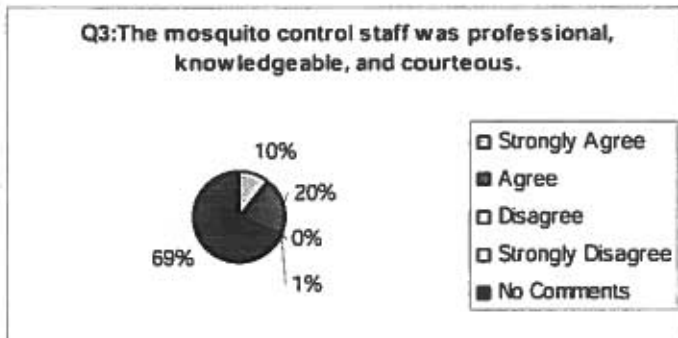
**Q2: The mosquito situation was bad in my neighborhood.**

18% Strongly Agree, 27% Agree, 29% Disagree, 16% Disagree, 10% No Comments



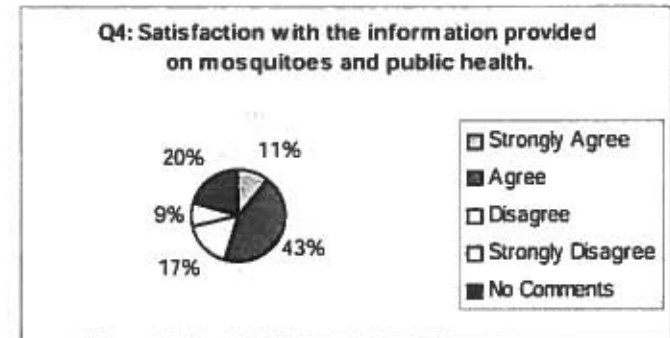
**Q3: The mosquito control staff was professional, knowledgeable, and courteous.**

10% Strongly Agree, 20% Agree, 0% Disagree, 1% Strongly Disagree, 69% No Comments



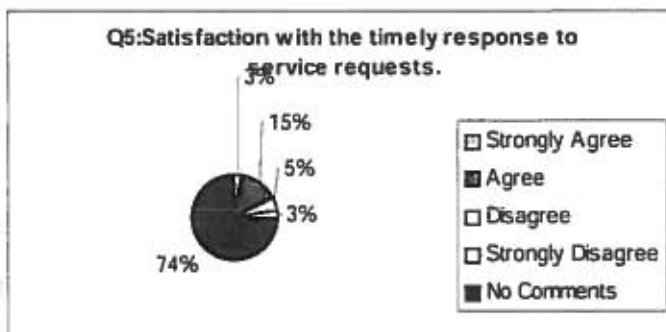
**Q4: Satisfaction with the information provided on mosquitoes and public health.**

11% Strongly Agree, 43% Agree, 17% Disagree, 9% Strongly Disagree, 20% No Comments



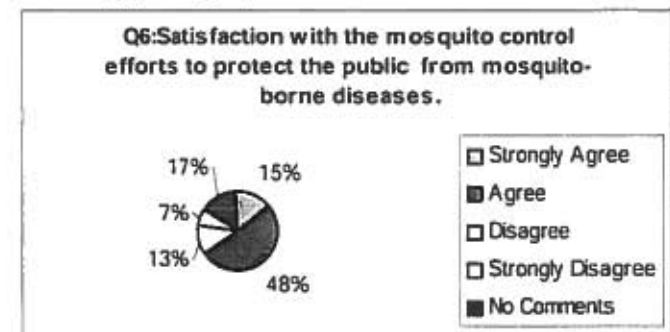
**Q5: Satisfaction with the timely response to service requests.**

3% Strongly Agree, 15% Agree, 5% Disagree, 3% Strongly Disagree, 74% No Comments



**Q6: Satisfaction with the mosquito control efforts to protect the public from mosquito-borne diseases.**

15% Strongly Agree, 48% Agree, 13% Disagree, 7% Strongly Disagree, 17% No Comments



### 3. Professional Service

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

AMCA (American Mosquito Control Association): Dr. Xue reviewed several manuscripts for the Journal of AMCA and published the proceeding of AMCA meeting Symposium about enhancing mosquito control without pesticides. Dr. Xue attended the AMCA annual meeting and gave a presentation about larvicide.

FMCA (Florida Mosquito Control Association): Mr. Boone served the board as NR Representative and co-instructor at the FMCA DODD Short Courses and was re-elected as NR Representative. Dr. Xue edited and published the 1<sup>st</sup> workshop in the Technical Bulletin of the FMCA in 2006. AMCD provided 20 CEUs for the FMCA members for AMCD and other Districts' employees through the 3<sup>rd</sup> workshop and symposium. Also, AMCD Director and related staff reviewed the white paper about source reduction for FMCA.

SOVE (Society for Vector Ecologists): Dr. Xue attended and submitted a poster about vector mosquito blood feeding behavior for SOVE annual meeting in October 2006.

ESA (Entomological Society of America): Dr. Xue reviewed 2 manuscripts for the Journal of Medical Entomology.

USDA/CMAVE: AMCD cooperated with USDA to continue studying mosquito population and Arbovirus surveillance, GIS and traps. AMCD cooperated with USDA/CMAVE in sponsoring the 3<sup>rd</sup> workshop to train the mosquito control workers.

UF/FMEL and MFREC. AMCD cooperated with the FMEL scientists and MFREC scientists to conduct mosquito larval collection and pesticide evaluation projects. Also, we worked in cooperation for the employee training through lectures and presentations in our workshop and symposium.

FAMU/PHEREC. AMCD cooperated with Dr. Harry Zhong to analyze the breakdown of pesticides in adulticide truck tanks, worked with other professors concerning bio-control bacteria, and cooperated in employee training.

East Flagler Mosquito Control District: Cooperation with Arbovirus surveillance.

DoD/Navy: Cooperation with pesticide testing and equipment evaluation.

DACS: AMCD has an operational contract with DACS. DACS provided training and participated in the program review. AMCD gave operational and budget reports to DACS.

DOH Tampa Laboratory: DOH helped AMCD to run the sentinel chicken blood test and provided employee training about Arbovirus.

ABC (America Biophysical Corporation). ABC provided new model of mosquito magnets to AMCD for continuing barrier treatment studies against salt marsh mosquitoes.

## Surveillance

### 1. Mosquito Population

In order to monitor nuisance and public health threats, AMCD conducts mosquito surveillance daily. We do this by monitoring adult populations by performing landing rate counts, trapping adult mosquitoes for population information and virus detection, and larval monitoring.

Landing rates are performed three times a week at 189 landing rate sites throughout the county. The inspector sprayer counts how many mosquitoes land on them within a one minute period. If more than five land, this indicates that there is nuisance problem and treatment may be necessary. We use this information in conjunction with our CDC Light trap collections. Each week a CDC light trap baited with octenol is set out in 52 locations to monitor adult mosquito populations. If there are more than 25 mosquitoes in the traps and we have had high landing rate counts near these locations a treatment may be made. We also monitor virus activity, with three pickle jar traps baited with dry ice located at various locations throughout St. Johns County. Adult mosquitoes are trapped, identified to species, and then pooled into 50 of the same species or less for virus detection. All surveillance of adult mosquito population by Landing rate count and CDC traps were conducted from March 1, 2006 to December 20, 2006. Larvae are monitored to identified breeding sites and optimize control of immatures before becoming adults.

### 2. Environmental Parameters

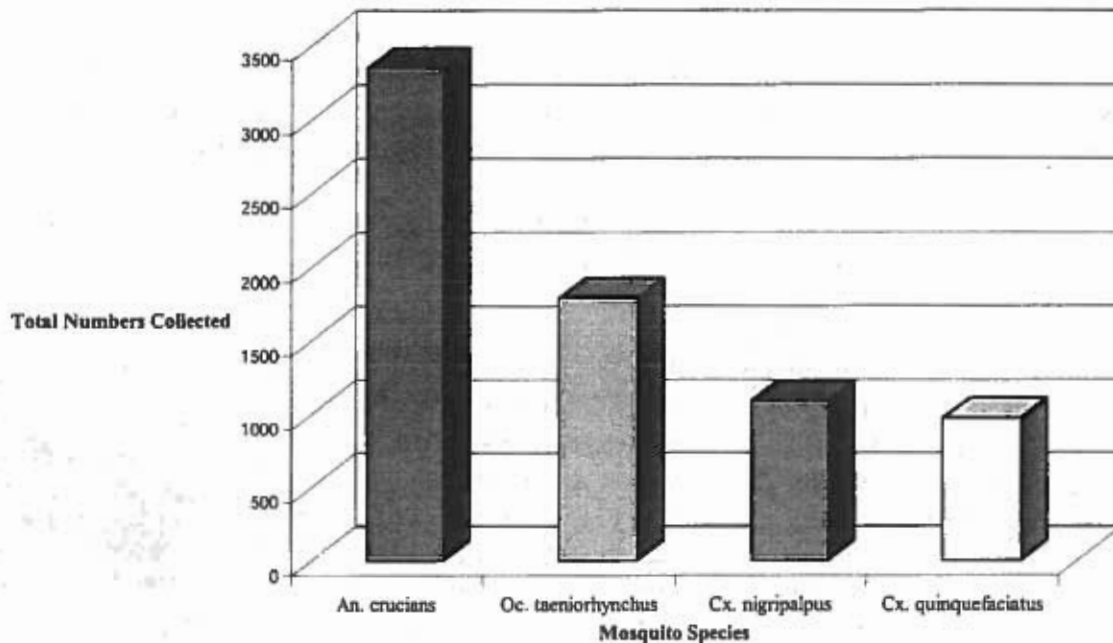
Sixty-five rain gauges and two tide gauges are located throughout the county to monitor rainfall and tide events. This information helps us predict when a large hatch or emergence of salt marsh or floodwater mosquitoes might occur.

Table 1: Total Numbers of Mosquito Population and Rain Gauge Data in St. Johns County, 2005-2006.

	Totals		Yearly Avg/site	
	2005	2006	2005	2006
CDC light traps (52)	62183.0	9422.0	1196.0	181.0
Landing Rate Counts (189)	18185.0	2537.0	96.0	13.4
Rain Gauge (inches) (65)	--	56.3	--	0.8
Pickle Jar Traps	145814.0	5422.0	36453.5	1807.0



**Figure 1: Top Four Mosquito Species Collected from January to December, 2006 in St. Johns County in CDC Light Traps.**



### 3. Arbovirus Monitoring

Arboviruses are arthropod-borne viruses. At AMCD we are concerned with mosquito-borne viruses. The most prevalent mosquito-borne viruses in St. Johns County are West Nile Virus (WNV), Eastern Equine Encephalitis Virus (EEE), Saint Louis Encephalitis Virus (SLE), Highland J Virus (HJV), and California Group Viruses. We monitor these viruses by using sentinel chickens and adult mosquito trapping.

Sentinel chickens are bled once a week from March to December at 10 locations throughout the county. Five sentinel chicken locations were bled the entire 2006 year. We have six birds at each location. The blood samples are sent to Tampa Laboratories for antigen/antibody detection associated with these viruses. Reports are received weekly and positive reports provide us with the information needed to treat areas that have virus activity. In 2006, we had two EEE positive chickens: one in April at Dupont Center and one in June at Ranch Road. The only WNV positive chicken was at the Base Station in September.

As mentioned earlier we trap adults at three locations with Pickle Jar traps. These mosquitoes are identified and pooled and then sent to Tampa for virus testing. This year 10 pools were sent to Tampa after the first positive chicken at Dupont Center. All pools tested negative. We also tested 5 pools on site using PCR detection from samples collected after the WNV positive in September. There were no positive pools.

## Operation Control

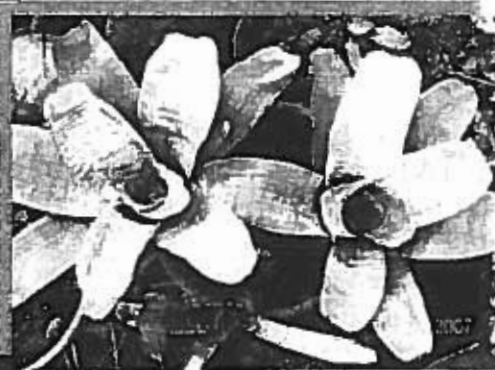
### 1. Source Reduction

Source reduction in mosquito control means reducing stagnant water sources/sites where adult mosquitoes lay their eggs. Source reduction is an important aspect of control for Anastasia Mosquito Control District because controlling mosquito populations starts with limiting or reducing the number of eggs, larvae or pupae from developing into an adult.

There are several factors that allow AMCD to determine the areas that need source reduction such as: customer contact, service requests, and surveillance. One of the ways AMCD deals with source reduction is through customer education. When a service request is made, an inspector/sprayer will go out to the site, survey the property for places mosquitoes would breed in, inform the customer and then implement a plan of action. For example, the inspector/sprayer may notice tires or a bird bath that contains mosquito larvae. After such determination, if the customer is home, the inspector/sprayer makes the customer aware of the fact that mosquitoes will lay their eggs in anything that holds water. For the homeowner/renter this means that mosquitoes will lay their eggs and go through their life cycle in common every day containers that are kept outside and hold water such as: kiddie pools, tires, vases, buckets, pet bowls, jars, toys, boats, bird baths, bromeliads, pitcher plants etc. The inspector/sprayer also makes them aware that by simply emptying the water from these containers, they can reduce mosquito populations. If a customer is not at home, an assessment is made and a door hanger that explains where the mosquitoes are coming from and how they can prevent growing mosquitoes in their own yards, is left.



Another way AMCD deals with source reduction is through their tire removal program. Upon receiving service requests, inspector/sprayers go to the sites and remove old tires free of charge. In 2006, 1,453 tires were collected which aided in our efforts of source reduction.



## 2.Larvicides and Larval Control

One of the most effective means of controlling mosquito populations is to reduce their numbers while in the larval stage. Mosquito larvae are generally concentrated in small bodies of water where the larvae are vulnerable to the application of larvicides. Adult mosquitoes are mobile flying insects not concentrated in one area thus difficult to control.

St. Johns County is approximately 609 square miles, which is equal to 389,760 acres. The district treats acres of accessible breeding sites, sometimes repeatedly during the mosquito season. Those sites include salt marsh, fresh water swamps, ditches, flooded pastures, yards and artificial containers.

Inspector/sprayers routinely monitor breeding sites, rainfall amounts, temperature and tide gauges. Inspectors treat larvae using an arsenal of different equipment and larvicides. Equipment includes ATVs, trucks, an airboat, backpack



blowers and dippers. Larvicides include Altosid, Golden Bear, Agnique, and *Bacillus thuringiensis israelensis*. Altosid is a contact larvicide, which is absorbed through the exoskeleton and inhibits larval growth. Golden Bear and Agnique are surface larvicides, which create a film and prevent oxygen transport. *Bti* is a form of biological control: bacteria release toxins that are ingested by the mosquito larvae. Mosquito fish are another form of biological control. Inspectors transplant larvae-eating fish into sites that have a high population of mosquito larvae. The above larvicides are environmentally safe and are effective.

The District is growing due to development. It is increasingly more important to map breeding sites and identify species so that larviciding can become more effective and efficient.

### Larvicide Application Summary

Larvicide	Application Amount	Acres	# of Treatments
Agnique MMF	8.70 gal.	17.41	16
Altosid Briquets	48,779 ea.	111.98	477
Aquabac 200 G	170 lb.	28.33	6
Aquabac XT Liquid	286.50 gal.	4,584.00	503
Golden Bear	85.30 gal.	28.43	54
Vectobac Granular	350 lb.	58.33	6
Zoecon Altosid XR-G	1,332.5 lb.	212.42	75

## Adult Control



### 1. Adult Control Program

One of the District's missions is to reduce/control the population of both pestiferous and disease-carrying mosquitoes. Adulticide materials are used to treat areas where adult mosquitoes are found in numbers that justify treatment. The following lists procedures and standards for the adult control program.

- Insecticides are dispersed from vehicle mounted equipment in areas accessible by vehicles.
- Industry standard surveillance methods are used to determine the necessity for adulticide missions. State regulations demand the documentation of surveillance data.
- Service requests for spraying, adult mosquito light trap collections, landing rate count numbers, current weather and rain gauge data are compiled to schedule areas for treatment.
- Landing rate count and rain gauge stations are monitored Monday, Wednesday and Friday.
- Adult mosquito light traps are set weekly throughout the county.
- Service requests from citizens are downloaded daily into a computer database (VCMS) and electronically transferred to inspector/sprayers assigned to the proper locations.
- In addition to vehicle mounted equipment, the District also uses hand held adulticiding equipment to treat small "back yard" areas not accessible from the road.

In 2006, Fyfanon ULV (Malathion) and Aqua-Reslin (Permethrin) was utilized in ground application equipment. Materials were applied using variable speed pumps, a monitor III computer system and high pressure nozzle systems. Applications were made in areas of the county easily accessible by vehicles.

Fyfanon (Active ingredient: Malathion) is a petroleum based liquid organophosphate. It is applied as a concentrate. The material is dispensed as micron droplets and introduced into the air. Malathion is considered a neurotoxin and kills the adult mosquitoes by over stimulating the nervous system.

Aqua-Reslin (Active ingredient: Permethrin) is a concentrated liquid product that is mixed with nine parts water to one part concentrate, and is applied using ground application equipment. The material is broken into micron droplets and introduced into the air. Aqua-Reslin kills mosquitoes by contact as they are exposed to the fog cloud. Also, Permethrin is considered a neurotoxin and kills the adult mosquitoes by over stimulating the nervous system.

### Adulticide Use Summary

Adulticide	Application Amount	Acres	# of Treatments
Permanone 31-66	.093750 gal.	17.76	3
Fyfanon	84.8 gal.	17,784.26	19
Aqua-Reslin	39.74 gal.	47,599.77	51
Total	124.63 gal.	65,401.79	73

### Future Plans for the program

Future goals include reviewing new insecticides for adult mosquito control, developing new control methods (toxic baits) and barrier spray applications to reduce pesticide applications.



## 2. Personal Protection/Prevention

Protection against mosquito bites is promoted through public education. Anastasia Mosquito Control District encourages the public to be proactive by following the "5 D's of Prevention."

Avoid going outdoors at DUSK & DAWN when mosquitoes are most active. To protect against bites, DRESS so that your skin is covered with clothing. (Long sleeve shirts and pants)  
Apply mosquito repellent containing DEET to bare skin and clothing.  
Empty containers and DRAIN stagnant water.



We also encourage homeowners to reduce mosquito breeding habitats by cleaning rain gutters periodically, raking leaves, disposing of old tires and flushing the water in bromeliads. Additionally, AMCD provides insect repellent with Deet at a variety of educational events.



## Education

### 1. Public Education:

#### a. Teaching & Judging events:

January, 2006. John Boone. "Introduction to mosquito control", Dodd Short Course, Gainesville, FL.

July 5, 2006. Village Academy, "Mosquito Prevention and Control"

July 18-19, 2006. YMCA Field trip, "Mosquito Prevention and Control"

November 14, 2006. Science Fair, Murray Middle School.

#### b. Community Events

March 18, 2006. River Clean-up.

April 22-23, 2006. Earth Day: Washington Oaks.

April 29, 2006. Earth Day: St. Augustine Amphitheatre.

May 6, 2006. South Woods Elementary.

May 6, 2006. Gamble Rogers Festival.

May 11-14, 2006. First Coast Birding and Nature Festival.

May 25-29, 2006. The 20th Annual Memorial Day Cathedral.

June 24, 2006. AMCD Open House.

June 27, 2006. St. Johns County Tax Office.

August 12, 2006. Ponte Vedra Wildlife Awareness.

September 6 & 20, 2006. Home Depot Display.

September 7 & 29, 2006. Walmart and Ponce Display.

September 8, 13 & 15, 2006. Publix & Winn Dixie Display (NW).

September 8, 15, 22, & 29, 2006. Ace Hardware & Dollar Store Display (SW).

September 7, 14, 21, & 28, 2006. Hastings Courthouse Display (SW).

September 9, 2006. Flagler Hospital Health Fair.

September 30, 2006. Kiwanis Club pancake breakfast.

October 7, 2006. USA 5K & Family Fun Fair.

October 14, 2006. Senior Expo.

October 28, 2006. Ancient City Kids' Day.

November 8-9, 2006. Northrup Grumman Health Fair.

November 14-19, 2006. St. Johns County Fair.

November 30, 2006. St. Augustine Career Fair.

#### c. Public Relations

March 16, 2006. Public Relations at Sebastian Middle.

April 13, 2006. Radio Interview WFOY.

April 16, 2006. St. Augustine Easter Parade.

June 2006. WFOY commercial.

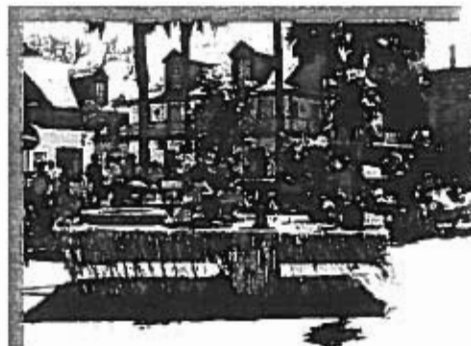
June 2006. WFOY Talk show.

July 2006. Phone interview with Ponte Vedra Recorder.

August 3, 2006. Phone interview WFOY.

August 3, 2006. Ch. 4 interview "Blind Mosquitoes."

September 18, 2006. Phone interview WFOY.



October 20, 2006. Phone interview Florida Times Union.  
October 24, 2006. Phone interview Florida Sun.  
November 2, 2006. Phone interview WFOY.  
November 2, 2006. Phone interview Ponte Vedra Recorder.  
November 27, 2006. Phone interview Ponte Vedra Recorder.  
November 28, 2006. Phone interview Ponte Vedra Recorder.  
December 2, 2006. St. Augustine Christmas Parade.  
December 22, 2006. In-person interview Ponte Vedra Recorder.

**d. Presentations for local associations & clubs:**

October 2006. Mrs. Gina LeBlanc, "AMCD's Education program," Kiwanis Club, St. Augustine.  
October 31, 2006. Mrs. Mary Willis, "AMCD History," Kiwanis Club, St. Augustine.  
December 20, 2006. Miss. Whitney Qualls, "Mosquito Biology and Disease," Poison Center, Jacksonville.  
December 20, 2006. Mrs. Gina LeBlanc, "Mosquito Prevention & Control, Poison Center," Jacksonville.

**e. Newspaper articles:**

June 29, 2006. St. Augustine Record, "Are you raising pet mosquitoes?"  
July 1, 2006. St. Augustine Record, "Mosquitoes due, precautions urged."  
August 3, 2006. St. Augustine Record, "Nuisance Problem."  
August 4, 2006. Ponte Vedra Recorder, "Move Mosquito Control? Or rebuild it for \$1m?"  
August 18, 2006. Ponte Vedra Recorder, "Ponte Vedra by the Sea community goes wild"  
October 1, 2006. St. Augustine Record, "Helicopter for spraying mosquitoes costs \$1.3M."  
October 5, 2006. St. Augustine Record, "Editorial: Mosquito Control helicopter expenses need a closer look."  
October 13, 2006. St. Augustine Record, "Chopper support heard."  
October 20, 2006. The Florida Times-Union, "What voters should know about the airport authority and mosquito control."  
October 30, 2006. St. Augustine Record, "Letter: Mosquito helicopter improves access, cuts staff."  
October 31, 2006. St. Augustine Record, "3 AMCD candidates say, 'No Helicopter'."  
November 3, 2006. St. Augustine Record, "Guest Column: Xue offers rebuttal to Sundeman interview."  
November 5, 2006. St. Augustine Record, "Mosquito Control information not correct or complete."  
November 10, 2006. St. Augustine Record, "Board tables helicopter deal."  
December 10, 2006. St. Augustine Record, "Longest-serving elected official to retire after 19 years with county."  
December 15, 2006. St. Augustine Record, "Board Oks chopper buy."  
December 18, 2006. St. Augustine Record, "Mosquito Control seeks new insurance carrier."  
December 24, 2006. St. Augustine Record, "Guest Column: Outgoing Mosquito Control Board Member thanks community."

## **2. Publications:**

### **a. Magazines & Newsletters:**

Xue, RD. 2006. Adult mosquito behavior in relation to operational mosquito control program. TBFMCA, 7:17-21.

Xue, RD, Barnard, DR, Ali, A. 2006. Laboratory evaluation of 21 insect repellents as larvicides and as oviposition deterrents of *Aedes albopictus* (Diptera: Culicidae). JAMCA 22:126-130.

Xue, RD. 2006. Introduction to symposium on enhancing mosquito control without pesticides. JAMCA. 23:489.

Xue, RD, Kline, DL, Ali, A, Barnard, DR. 2006. Application of boric acid baits to plant foliage for adult mosquito control. JAMCA 23:497-500.

Ali, A, Xue, RD, Barnard, DR. 2006. Effects of sublethal exposure to boric acid sugar bait on Adult survival, host-seeking, bloodfeeding behavior, and reproduction of *Stegomyia albopictus*. JAMCA 23:464-468.

### **b. Web page**

The web page was established in 2003. It is updated on a biweekly basis. The web page contains a multitude of information such as: mosquito biology, mosquito-borne diseases, mosquito habitat, surveillance, prevention & control, operations, services, Research & Education, District information, links, contact & employment information and Information Sheets & Digest.

### **3. Continuing Education:**

#### **a. Classes:**

January 6, 2006. Dr. Rui-De Xue "Insecticide Bioassays."  
January 6, 2006. Mrs. Gina LeBlanc, "How to calculate volume for pesticide use."  
January 6, 2006. Mr. David Bearl, "Professionalism in the workplace, Part 2."  
February 3, 2006. Miss. Brooke Tedford, "How to file your tax return."  
February 3, 2006. Mr. David Bearl, "Professionalism in the workplace Part 3."  
February 3, 2006. Mrs. Gina LeBlanc, "How to calculate concentration and mix pesticides."  
March 3, 2006. Mr. Fox, "CPR training."  
March 3, 2006. Mr. David Bearl, "Professionalism in the workplace Part 4."  
April 4, 2006. Mrs. Samanie-Weeks, "VCMS training."  
June 7-8, 2006. Seasonal employee training.  
June 9, 2006. All employee training.  
June 22, 2006. Dr. Muller, "Mosquito sugar feeding."  
June 28, 2006. Mrs. Gina LeBlanc, "Employee handbook training."  
August 11, 2006. Sexual harassment training.  
August 11, 2006. Dr. Amoo, "Malaria in Africa."  
August 11, 2006. Overview of State Park Project.  
September 21, 2006. Mrs. Royalis, "Vectolex, a new mosquito larvicide."  
September 21, 2006. Mr. Bobby Grant, "Mosquito misting system for mosquito & midge control."  
September 21, 2006. Dr. Rui-De Xue, "Multiple blood meals affect gonotrophic dissociation & fecundity in *Aedes albopictus*."  
October 13, 2006. Mr. Mark Latham, "Aerial Program and Aerial Application."  
October 19, 2006. Mrs. Whitney Qualls, "Evaluation of household permethrin products against *Culex quinquefasciatus*."  
October 19, 2006. Dr. Amoo, "Midterm report for field tests."  
November 20, 2006. Mr. Chris Benjamin, "Tire removal program and cooperative efforts with AMCD."  
November 29, 2006. Mr. Richard Blackburn, "Airboat training."

#### **b. Symposium, workshops & Professional Meetings:**

March 23-25, 2006. 3<sup>rd</sup> Arbovirus surveillance and mosquito control workshop (Dr. Xue & Dr. Kline, Organizers).  
May 31-June 1, 2006. AMCD program review (Dr. Xue and Mrs. LeBlanc, Organizers).  
June 23, 2006. Seminar about mosquito sugar feeding behavior and possible control by Dr. Gunter Muller from Israel.  
August 3, 2006. Permethrin product symposium (Dr. Xue, Organizer).  
September 28, 2006. DACS Budget, TRIM, and Financial Analysis workshop for the Board  
October 2006. Florida aerial application workshop (Mr. Mark Latham) for the Board and public.  
October 2006. Seminar about aerial application by Mr. Mark Latham for all employees.

**c. Presentations at Professional Meetings:**

St. Johns County Arbovirus surveillance report, 3<sup>rd</sup> workshop, AMCD, March 23, 2006 (Dr. Rui-De Xue).  
St. Johns County's aerial application at emergency situation 2005, 3<sup>rd</sup> workshop, AMCD, March 24, 2006 (Kay Gaines).

Overview of AMCD's education program, 3<sup>rd</sup> workshop, AMCD, March 24, 2006. (Gina LeBlanc).

Mosquito traps and attractants for population surveillance, 3<sup>rd</sup> workshop, AMCD, March 24, 2005 (Whitney Qualls).

Laboratory and field evaluation of mosquito larvicides, AMCA, Detroit, Feb 26, 2006 (Dr. Rui-De Xue).

Overview of AMCD's program and future plan, FMCA Spring meeting, St. Peter, May 5, 2006 (Dr. Rui-De Xue).

AMCD's Program Report: Customer & Professional Service and future plan, AMCD, Program Review meeting, May 31, 2006 (Dr. Rui-De Xue)

AMCD's surveillance program & applied research, Program Review meeting, May 31, 2006 (Whitney Qualls)

AMCD's operational program, Program Review meeting, May 31, 2006 (John Boone).

AMCD's education & public relation programs, Program Review, May 31, 2006 (Gina LeBlanc).

Overview of commercial permethrin products, Permethrin Product Symposium, AMCD, August 3, 2006 (Dr. Rui-De Xue)

Permethrin decomposition in spray truck tanks after winter, Permethrin Product Symposium, August 3, 2006 (Dr. Rui-De Xue).

Field tests for permethrin product protocol, Permethrin Product Symposium, August 3, 2006 (Dr. A. Amoo).

Double blood meals affect gonotrophic cycle and fecundity in *Aedes albopictus*, Annual meeting of SOVE, October 3, 2006 (poster).

Permethrin decomposition after storage in spraying truck tanks for 4 months, Annual Meeting of the FMCA, Stuart, FL, November 13, 2006.

Efficacy of commercial household permethrin products against *Culex quinquefasciatus*, Annual Meeting of the FMCA, Stuart, FL, November 13, 2006.



## Applied Research

Applied research is the primary form of research done at Anastasia Mosquito Control District. The purpose of our applied research is to test the efficacy of existing and new innovative methods of mosquito control and to develop new technologies that will allow us to reduce our operational costs. In 2006, we had a number of research projects that focused on testing the efficacy of permethrin products, used in adult mosquito control, and the decomposition of these products when stored during the mosquito-off season. We also tested the efficacy of Altosid XR-G, an insect growth regulator used in larval mosquito control, to determine its effectiveness in salt marsh mosquito control and its longevity when exposed to variable environmental conditions.

The evaluation of three water soluble permethrin products AquaReslin®, AquaKontrol®, and AquaLuer™ was done to clarify the effectiveness of these products against adult mosquitoes *Culex quinquefasciatus*. Both AquaKontrol® and AquaLuer™ were responsible for more than 80% mortality within 1 hr post application. The highest mortality was obtained 12 hrs post application for both AquaReslin® and AquaKontrol®, as compared to 24 hrs for AquaLuer™. In comparing the means, significant differences were observed in the mortalities caused by the three permethrin products. AquaKontrol® and or AquaLuer™ performed significantly better ( $P < 0.05$ ) than AquaReslin®.

We also sampled the spray-truck tanks which store AquaReslin during the mosquito-off season. The district has 16 ULV spray trucks with tanks mounted on the back of these trucks. The tanks are filled to capacity with Aqua-Reslin® during the mosquito season. Because the ending date for the active spray season is so unpredictable, all 16 tanks are loaded with Aqua-Reslin® when spraying stops for the mosquito season. The excess AquaReslin remains stored in these tanks during the mosquito-off season from December to June.

The primary purpose of this study was to examine whether the excess permethrin in the tanks mounted on the spray trucks decomposes after four months of storage during the mosquito-off season. Our findings suggested that the excess Aqua-Reslin formulations, after 4 months of storage, were subjected to significant degradation compared to the original stock solution. These results suggest that we need to determine another method of storage for our chemicals during the mosquito-off season. If we estimate that a single spray mission for control of adult mosquitoes averages \$500-\$600 and we would have to make multiple spray missions because our treatment chemical active ingredient permethrin had lost its effectiveness, then by applying this information we save a minimum of \$500-600 by knowing before each mosquito season the amount of decomposition of our permethrin products.

Altosid XR-G was tested in three Field Trials at the Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNER) to evaluate its effectiveness as a pretreatment chemical to control salt-marsh mosquitoes. Three applications of Altosid XR-G were made containing 1.5% methoprene (active ingredient) at an application rate of 20 lbs/ac, 10 lbs/ac, and 5 lbs/ac. Pupae were collected from each Field Site after a rain event. Under field conditions, Altosid XR-G offered 44.6% control 64-days post-treatment at Field Site 1 (20 lbs/ac), 43.7 % control 64-days post-treatment at Field Site 2 (10 lbs/ac), and 38 % control 61-days post-treatment at Field Site 3 (5 lbs/ac) (Table 1). Of these collections 68% were *Ochlerotatus sollicitans*, 27% were *Oc. taeniorhynchus*, and 5% were *Psorophora columbiae*.

The effectiveness of Altosid XR-G was also evaluated to determine its longevity when exposed to sunlight. This information is necessary to determine if this product can be used to pretreat areas before a rain event for control of flood-water mosquitoes. This project is ongoing. Since October 4, 2006 ½ lb of Altosid XR-G





has been exposed to natural sunlight. Each week, 3<sup>rd</sup> instar *Cx. quinquefasciatus* larvae are exposed to 1 granule of XR-G. Twelve weeks post exposure (84 days), Altosid XR-G is still providing 58% control. These results reported here suggest that Altosid XR-G® provides adequate control after being exposed to the environment for up to three months. By applying this chemical to salt marshes before the first high tide or rainfall of the mosquito season, large hatches of nuisance salt marsh mosquitoes can be reduced and almost eliminated for the first flooding event. In addition, this chemical can persist and remain viable, as seen in his study, for up to three months post application. This allows the district to save money and focus manpower on inland areas.

**Table 1. Mean percentage of emergence inhibition (% EI) of salt-marsh mosquitoes from Altosid-treated Field Sites and Control Sites at Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNER), Florida, April-July, 2006.**

		Altosid XR-G-Treated				Control Site	
Day Post-Treatment	Collection Date	Rain Fall (mm)	Field Sites Sampled	NO. Pupae Collected	%EI	NO. Pupae Collected	%EI
6	6-May	25.4	2	50	100.0	100	25.0
13	12-May	25.4	2	150	88.1	69	17.4
49	19-Jun	76.1	1	1762	92.2	180	7.0
49	19-Jun	76.1	2	1189	84.0	200	8.1
46	19-Jun	76.1	3	863	61.5	182	7.2
64	28-Jun	76.1	1	507	44.6	25	2.2
64	28-Jun	76.1	2	421	43.7	54	3.3
61	28-Jun	76.1	3	215	38.0	21	4.5

## Aerial Application

AMCD currently has an emergency aerial application contract with Clarke Mosquito Control. Due to dry weather conditions in 2006, no aerial application was used.

AMCD is looking to develop an aerial program that was originally initiated in 2003 and has since then progressed to the approval of a contract to purchase a Bell 206L4 helicopter on December 14, 2006. The helicopter is scheduled to arrive in the second quarter of 2008.

The purpose will be predominantly for larviciding and surveillance. However, this helicopter will also be utilized for emergency adulticide application. In preparation, we may form a partnership with the St. Johns County Sheriff's Department for the purpose of using their hangar space, and utilizing their part time mechanic and pilot in exchange for emergency use of our helicopter for business associated with the Sheriff's Department.

We are anticipating an increase in efficiency and effectiveness of controlling nuisance populations and mosquito-borne diseases.



## Administrative & Supply Service

1. **Budget:** Budget revenue for 06-07 cost is local fund \$ 3,071,579 and state fund \$37,000. Total revenue and ending cash balance: \$5,038,202. Total expenditure, cont. & reserves: \$5,038,202. Our millage rate was reduced from 0.1550 in 2005 to 0.1500 in 2006. All employee received \$1,600 raise.
2. **Fund:** State fund \$37,000, workshop income \$4500
3. **Inventory:** Staff conducted annual inventory and PV inventory after the closing of PV substation.
4. **Personnel:** Mr. Tom Downey and Mrs. Michelle Davenport have been hired as inspector / sprayer I March 1, 2006. Mr. Mike Smith's title was adjusted from supervisor to Inspector/Sprayer IV December 15, 2006 after the PV substation closed. Mr. Smith transferred to the Department of Entomology and Surveillance. Mr. Vincent Price, Mr. Mike Mills, and Mrs. Michelle Davenport were transferred from PV to North station under Mr. John Boone's supervision after the closing of PV.
5. **Awards:** Mr. Richard Weaver was awarded the safety award in 2006. Many employees have been awarded safety pins.
6. **Policy:** Staff worked out several new policies (hiring, discipline, and research) for the Board approval and suggested that the board change several policies (new employee probation and vacation request time). Staff updated AMCD's policy book and employee handbook.
7. **Contracts:** Recommended to the Board to terminate SW gasoline supply contract, approved tree cutting, land planner, pesticide supply, new auditor/CPA, helicopter purchase, and other contracts.
8. **Insurance:** Recommended to renew all insurances.
9. **Program review & reorganization:** AMCD conducted a program review on May 31 and June 1, 2006. The Department of Entomology and Surveillance has been formed and all surveillance projects have been centralized at the base station. All inspectors will have more time to concentrate on larval inspection and control after transferring the bleeding of chickens and CDC trap collection to the new department.
10. **Public Relations:** Staff answered numerous requests regarding the helicopter purchase, pesticides, and biological control via phone, e-mail and letters. AMCD held several public meetings concerning environmental issues.
11. **Equipment & Facility:** Bought 1 new truck and 6 vehicles were surplus after the closing of PV. The new Central station site has been under review for rezoning change and the trees have been cut.
12. **Safety:** Safety committee held several meetings in 2006 and the accident reports have been greatly reduced. North station built an automatic gate. Base station gate was broken and damaged in August 2006.
13. **Repair & Maintenance:** Mechanics and other employees repaired numerous trucks and fogging machines. Employees painted and repaired all buildings at the base station.



**CHEMICAL AND INSECTICIDE SUMMARY 2006:  
A RUNNING TOTAL BY MONTHS**

KIND OF CHEMICAL	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
AGNIQUE MMF	\$1,560.32	\$1,560.32	\$1,413.12	\$1,413.12	\$1,413.12	\$1,413.12	\$1,392.88	\$1,361.14	\$1,361.14	\$1,361.14	\$1,287.54	\$1,287.54
ALTOCID BRIF-QUETTES	\$22,654.00	\$22,654.00	\$22,177.52	\$12,022.70	\$9,564.60	\$11,880.70	\$16,513.85	\$11,369.60	\$20,772.70	\$19,847.40	\$18,696.00	\$18,696.00
ALTOCID XRG GRANULES	\$23,976.00	\$23,976.00	\$22,824.00	\$21,960.00	\$21,636.00	\$20,772.00	\$17,575.20	\$14,976.00	\$14,749.20	\$14,734.80	\$14,518.80	\$14,374.80
ALTOCID WSP	\$0.00	\$0.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00
AQUA-RESLIN	\$82,758.81	\$82,758.81	\$82,758.81	\$82,758.81	\$82,758.81	\$82,657.40	\$79,139.73	\$76,755.09	\$122,577.91	\$122,560.28	\$122,500.28	\$123,364.76
B.T.I AQUA-BAC LIQUID	\$13,335.80	\$13,335.80	\$13,201.40	\$13,121.40	\$12,771.80	\$11,783.80	\$11,077.60	\$9,528.00	\$7,155.94	\$6,417.54	\$6,044.74	\$6,066.74
B.T.I TEKNAR LIQUID	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,049.28	\$4,049.28	\$4,049.28	\$4,049.28
B.T.I TEKNAR GRANULES	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,752.00	\$1,752.00	\$1,752.00	\$1,752.00
B.T.I AQUA-BAC 200G	\$3,997.50	\$3,997.50	\$3,697.50	\$3,697.50	\$3,697.50	\$3,687.50	\$3,701.50	\$3,701.50	\$3,701.50	\$3,701.50	\$3,675.50	\$3,707.50
B.T.I VECTO-BAC GRANULES	\$748.80	\$748.80	\$748.80	\$748.80	\$620.10	\$386.10	\$386.10	\$386.10	\$386.10	\$339.30	\$339.30	\$339.30
B.T.I VEC-TOLEX	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.50
GRANULES DIESEL OIL	\$1,059.38	\$1,054.33	\$1,022.23	\$1,022.23	\$1,022.23	\$1,010.42	\$1,010.42	\$921.07	\$921.07	\$920.92	\$925.62	\$932.84
FYFANON 95%	\$57,503.13	\$57,503.13	\$57,615.63	\$57,615.63	\$57,615.63	\$57,390.63	\$56,828.13	\$56,265.63	\$55,793.13	\$55,793.12	\$55,793.12	\$55,590.63
GASOLINE	\$5,285.75	\$6,044.94	\$9,990.48	\$7,373.22	\$5,523.16	6680.58	\$9,360.24	\$5,590.11	\$6,314.07	\$4,921.86	\$4,125.85	\$5,785.58
GOLDEN BEAR	\$168.00	\$168.00	\$144.00	\$120.00	\$120.00	\$66.00	\$3.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MOSQ. LARV. GB-1111	\$705.75	\$705.75	\$705.75	\$705.75	\$705.75	\$687.00	\$645.75	\$409.50	\$2,824.33	\$2,784.95	\$2,768.08	\$2,783.08
PERMA-NONE MIX	\$494.32	\$494.32	\$494.32	\$494.32	\$494.32	\$494.32	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92
<b>TOTAL =</b>	<b>\$214,247.56</b>	<b>\$215,001.70</b>	<b>\$219,913.56</b>	<b>\$206,173.48</b>	<b>\$201,063.02</b>	<b>\$202,029.57</b>	<b>\$201,246.32</b>	<b>\$184,875.66</b>	<b>\$245,970.29</b>	<b>\$242,796.01</b>	<b>\$240,088.03</b>	<b>\$242,390.47</b>



ANASTASIA MOSQUITO CONTROL DISTRICT  
OF ST. JOHNS COUNTY

**CONSOLIDATED FINANCIAL STATEMENTS -- LOCAL FUND - 2006**

	2006
REVENUE	3,071,579
EXPENDITURES	<u>2,242,426</u>
EXCESS or (DEFICIT)	829,153
BEGINNING CASH BALANCES	4,155,602
ACCRUAL\CASH ADJUSTMENT	<u>53,447</u>
ENDING CASH BALANCES	<u>5,038,202</u>
RESERVES:	
CONTINGENCY	531,500
FUTURE CAPITAL OUTLAY	489,412
SICK/VACATION LEAVE	6,000
ENDING CASH BALANCES	4,011,290
TOTAL RESERVES	<u>5,038,202</u>

ANASTASIA MOSQUITO CONTROL DISTRICT  
OF ST. JOHNS COUNTY

**CONSOLIDATED FINANCIAL STATEMENTS -- STATE I FUND -- 2006**

	2006
REVENUE	28,386
EXPENDITURES	<u>5</u>
EXCESS or (DEFICIT)	28,381
BEGINNING CASH BALANCES	13,592
ACCRUAL\CASH ADJUSTMENT	<u>0</u>
ENDING CASH BALANCES	<u>41,973</u>
RESERVES:	
CONTINGENCY	1,000
FUTURE CAPITAL OUTLAY	-
SICK/VACATION LEAVE	-
ENDING CASH BALANCES	40,973
TOTAL RESERVES	<u>41,973</u>

## OPERATIONS SUMMARY

OPERATIONS	HOURS
ADMINISTRATIVE	11213.5
ADULTICIDE	240.4
ASSIT	1455.4
BUILDING MAIN.	4970.0
CALIBERATION	8.8
CHEMICAL	21.0
CHICKEN SURVEY	2297.5
COMPUTER REPAIR	98.5
DRY ICE	10.3
EQUIPMENT MAINT.	690.3
FIELD EXP.	428.8
FILLING TRUCK	25.2
GAS	86.3
GROUNDS WORK	1690.3
HAND FOG	19.6
IDENTIFY	334.8
INSECTARY	239.5
INSPECT	12080.9
INVENTORY	587.0
LAB EXPERIMENT	66.5
LARVICIDE	1966.7
LIGHT TRAP	1460.0
MECH. VEH./EQU.M	1563.8
MEETING	4727.7
MOLECULAR	19.4
MOSQUITO POOL	27.6
OFFICE	3386.5
OTHER	868.9
PICKLE JAR TRAP	138.3
PUBLIC RELATIONS	623.7
SPECIAL PROJECT	319.3
SUPERVISORY	3360.9
TIRE	142.2
TRAILS	151.6
TRAINING	2359.5
TRAVEL	1884.3
VEHICLE MAINT.	426.4
WATER	5.7
ANNUAL LEAVE	3503.0
COMP. TIME	38.3
HOLIDAY	2616.5
L.W.P.	71.0
SICK LEAVE	1811.0
SICK / PERSONAL L.	248.0
<b>TOTAL LEAVE</b>	<b>8287.8</b>
<b>TOTAL HOURS</b>	<b>68284.9</b>
<b>TOTAL WORK</b>	<b>59997.1</b>

## Committee & Contributors for Annual Program Report

Committee Chair: Dr. Rui-De Xue, District Director

Editor: Mrs. Gina LeBlanc, Education Specialist

Members: Mr. John Boone, NW Supervisor

Mrs. Kay Gaines, Base Supervisor

Mr. Richard Weaver, VCMS Coordinator

Contributors: Mr. David Taylor, SW Supervisor

Miss. Whitney Qualls, Biological Technician

Mrs. Brooke Tedford, Accountant

### Acknowledgments:

We thank all members of the Board of Commissioners, the District Attorney, all employees, all outside contractors, and cooperative organizations and agencies for helping AMCD's programs in 2006. We also thank USDA/ARS/ Center for Medical, Agricultural, and Veterinary Entomology, Mosquito & Fly Unit who gave us their support for workshops, symposiums, lectures, and research, The Department of Agricultural & Consumer Service who provided partial funding, The State Department of Health, Tampa Laboratory who helped to test arboviruses, local residents who allowed us to use their property to conduct surveillance and experiments, and The American Biophysical Company for the support with new model mosquito magnets, pickle jar traps, and a numerous number of mosquito attractants.