Experience for Building Sustainable Mosquito Control Programs

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St. Johns County is located in northeast Florida
- 609 Sq. Mi. (389,760 acres)
- more than 240,000 in population
- Bordered on the east by the Atlantic Ocean and on the west by the St. Johns River
- 47 miles of intra-coastal waterway, bordered by salt marsh
Anastasia Island and St. Johns County Needs the Program

- Salt marsh mosquito nuisance, yellow fever & malaria concerns in the 1940’s
- In 1948, a part of Anastasia Island was created as an independent special mosquito control district to cover 17 sq. miles
- In 1964, P.V. became a part of AMCD.
  - Built the PV sub-station and covered about 60 sq. miles
- In 1992, N.W. residents voted to form and build the NW Sub-station
- In 2003, WNV outbreak, SW voted to form SW sub-station and became countywide service (4 sub-stations to cover 609 square miles)
Independent Special District

- Political entity and elected officers
- Local taxing authority
- Specific objective and purpose
- There are 1,360 special districts (15 mosquito control districts) in Florida.
- 1984, no more creations for a special district. The new program is under the DOH in Florida.
The Benefits of the Special District

- Specific funds for one purpose - mosquito control
- Governed by local elected officers who represent local residents
- Quickly responds and handles mosquitoes and mosquito-borne disease outbreaks
- AMCD is governed by a Board of Commissioners – (5 elected Commissioners) and operates under the Florida Statute, Chapter 388 and DACS Administration Code 5E-13
- Commissioner elections are 4 year terms, countywide
BOARD MEETINGS

- Board meetings are held on the 2nd Thursday at 5:00 P.M. every month
- Occasionally, there are special meetings and workshops to address special concerns and topics
- There are 5 sub-committees (Planning, Financial, Operations, Applied Research, and Educational Committees) and each subcommittee has an appointed Board member as the chairperson.
- The Sunshine Law is applied at the meetings and they are open to the public
WHO ARE WE?

- The Board appoints and evaluates the Executive Director and a contracted part-time Attorney and a Certified Public Accountant (CPA).
- The Board represents the local taxpayers, makes the policies, approves the budget and adopts the millage.
- AMCD has 27 full time employees (a great team), 8-10 seasonal employees, 2 adjunct -voluntary positions, 4-8 Interns and 3-5 Visiting Scientists
- AMCD has an approximate 4 million dollar active budget from taxes and grants.
- The millage in the past 10 years was averaged at 0.165.
AMCD’s new facility complex (9 builds with 41,500 SF in 18 acres)
Mission: To protect all people from the nuisance of mosquitoes and mosquito-borne diseases in St. Johns County, Florida

Values: Service driven, scientific based, professional, justified, environmentally-friendly, collaborative, compassionate, accountable, and sustainable excellence

Vision: AMCD of St. Johns County will be among the leading Districts for mosquito control and the people in St. Johns County will be among the healthiest in the nation—a well served community, enjoyed by all and supported by all partners.
HOW TO REACH THE MISSION & GOALS?

- Programs are the road map
- Programs are the guideline for daily operations
- We are all together to carry out the programs through scientific-based decision making and applied research through wide collaborations, and education through employees and community involvement
WHAT TYPE OF PROGRAMS DO WE HAVE?

- Customer and professional service
- Surveillance for mosquito-borne diseases and mosquito populations (45 species)
- Operational control (ground and aerial applications)
- Applied research (25% effort)
- Education & public relations (25% effort)
- OPERATIONS (50%)-RESEARCH-EDUCATION
Customer Service with a new App

How does the app work?

The app allows customers to enter service requests, but also allows the customer to look up fogging maps and fogging dates, their service request history, the status of an old service request, and set up a permanent profile.

Smart Phone Apps

Splash Screen

Opens to current phone location
Map view

Menu Dropdown

- Home
- Requests
- Fogging
- Profile
- About
SURVEILLANCE (ARBOVIRUS & MOSQUITO POPULATION)

Rotator trap
BG-Lure
Dry ice
2017-PRESENT

COLLABORATIVE PROJECTS

- SIT: UF & USDA/CMAVE, release-recapture in 2017; Release & evaluation in 2018, and application in 2019

- AGO (large scale deployment): SpringStar, 2017 & 2018

- MosquitoMate: Small scale release in 2018 & large scale release in 2019

- ATSB: CDC Southeast Center of Excellence in VBD, University of Miami, and Hebrew University, new toxins, 2017-2019

COLLABORATION WITH INTERNATIONAL & FEDERAL AGENCIES FOR CONTROL TECHNIQUES AND EQUIPMENT
INTERN STUDENTS & VISITING SCIENTISTS (OPPORTUNITIES)

- 4-8 intern students for summer research projects (paid positions)
- 3-5 visiting scientists
2018

**INTERN STUDENTS**

**VISITING SCIENTISTS**

**ADJUNCT PROFESSORS**

**INTERNS & VOLUNTEERS**

- Morgan Smith, Lab Tech Intern
  5/18/18 - 2/25/18

- Courtney Cawthorn, Intern
  5/23/17 - 10/30/18

- Catherine Chen, Intern
  5/16/18 - 7/27/18

- Parker Brown, Intern
  5/15/18 - 8/7/18

- Legoa Mbuli, Intern
  6/26/18 - 10/17/18

- Carolee Back, Intern
  7/11/18 - 10/20/18

- Victoria Reuther, Intern
  8/20/18 - 12/30/18

- Olivia Streeter, Intern
  5/24/18 - 7/27/18

- Dr. Ming Zhu, Visiting Scientist, Jingshu Province
  07/15/18 - 10/26/18

- Dr. Chao Shi, Visiting Scientist, Jingshu Province
  07/15/18 - 10/26/18

- Kathy Shirley, Visiting Scientist, Valley Ridge Academy
  06/26/18 - 07/10/18

- Mrs. Hui Liu, Visiting Scientist, Jiangsu Province
  CDC
  05/20/16 - 07/30/16

- Dr. Emaad Khan, Visiting Scientist, Abu Dhabi, UAE
  5-6-18 to 11-07-18

- Dr. Hussain Sanchez, Visiting Scientist, State of Mexico
  8-1-18 to 7-31-18

- Dr. Gunter Mueller, Adjunct Senior Vector Ecologist
  October 2018

- Dr. Michael Turell, Adjunct Senior Arbo-Vecologist
  October 2018
Building Aerial Program

- 2003 - Start aerial program
- 2007 - Cancelled helicopter contract
- 2009 - Cost analysis
- 2017 - Approved building a hangar
- 2018 - Aerial committee
- 2018 - Purchased a helicopter and hired a pilot
- 2019 – Program is running
WHAT WE LEARNED

- Zika concern & *Aedes aegypti* back in 2016
- Hurricanes: Matthew 2016 & Irma 2017
- Local community & business industry participation
- Residential petition
- Educate legislation
AMCD’S PROGRAM REVIEW AND EVALUATIONS

- In 2006, 9 mosquito control directors reviewed AMCD’s programs
- In 2009, Independent Agency, Dr. David Dame & Mr. E. John Beidler reviewed AMCD’s programs
- In 2012-14, Governor’s office audited and reviewed special mosquito control district’s programs
- Following-up, adjustment, improvement, and self and community (survey) evaluation
- Current programs are standard after many years of practice
AMCD’s 2019 Plan and Future Plan

- Celebrating our 70th service to the St. Johns County, FL, 2019
- Finish construction project by the end of June, 2019
- Experts will have lab and site visits and evaluations, July 2019
- Apply for IVCC/WHO’s GLP & Center for Evaluation of Public Health Pesticides and Equipment with NECE (?) together, 2020
- Have a complete aerial program, April 2019, purchase one more helicopter and hire a mechanic and a part time pilot, 2021-2022
- MosquitoMate & SIT projects, 2019 & 2020
- Conduct AMCD’s program review, May, 2020
- Build Disease Vector Museum (4,000 sf) for education, 2020-2021
**Policy Making:** Public Health, Agriculture, Education, and Environmental law divisions need to have a common goal to issue guidelines in line with local needs. Promote establishment of indicators of progress (monitoring).

**Community:** Promote behaviors that strengthen community participation in public health campaigns. Learn and prioritize community needs and target such with educational material from multiple approaches, such as social media, telecommunications, and house-to-house-visits.

**Organizational:** Scale up investments in infrastructures of mosquito control program, especially in surveillance systems with data systems technologies. Integrate public health education at all school levels, promote communications through leadership groups.

**Interpersonal:** Promote interpersonal relations by creating self-evaluation and self-regulation health campaigns.

**Individual:** Study risk perceptions and susceptibilities at the individual level in order to better target educational campaigns.
RECOMMENDATIONS

- Figure out if you need to have a program based on your area and community needs and situations
- Educate your legislation
- Use all possible resources and collaborations
- Ask the public and community for involvement
- Create a program if you need and do not have one.
- Set up the program goal
- Conduct a program review if you have a program already
THANK YOU & QUESTIONS