

2016 Mosquito Annual Report

Ada County Mosquito Abatement District

A quick look back into 2016...

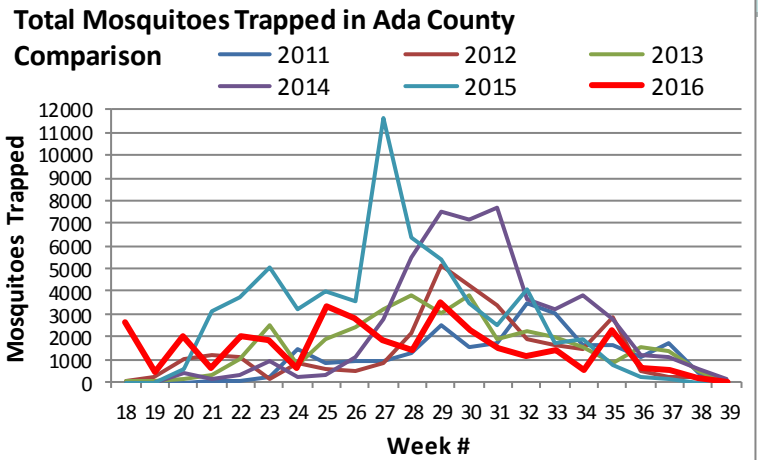
Early in February of 2016, well before mosquito season started, we already started getting calls from the media and residents inquiring about Zika virus and is it in Idaho? That was the start of our mosquito season, with daily world-wide news breaking of a “new” mosquito virus that causes birth defects to babies. As the news continued to come out, there was indeed a problem with this “new” virus, but we are fortunate to say at this time, we do not have the currently known vector (*Aedes aegypti* or *Aedes albopictus*) that can carry this virus in Idaho.

From then on we wondered what our program would look like for the 2016 season. We had focused over the winter on revamping and making additions to our

mosquito control district to help provide more and better services to the residents. One thing we focused on primarily was when hiring on seasonal field technicians, to do a more thorough training program, including a graduation through a “Larvicide Olympics” course before staff went into the field on their own. Through this more structured and thorough training, we found that the seasonal staff could do their jobs better with more confidence and education. When they were out speaking with the public, they were knowledgeable and had facts and information for the residents. They were more thorough with the field work and made better applications because of it, resulting in

less adult mosquitoes throughout the season. In general, while the larvicide crew did more inspections and monitored more sites, there were less adult flying mosquitoes and less WNV this year, which can be seen in the following articles of this report. Overall the season was a success with a good crew!

Desireé Keeney, Field Operations Manager



Affiliations/ Memberships

- Idaho Mosquito and Vector Control Association (IMVCA)
- Northwest Mosquito and Vector Control Association (NWMVCA)
- American Mosquito Control Association (AMCA)

Inside this report

Mosquito Surveillance	2
West Nile Virus, Ada County	3
Mosquito Adulticide Operations	4
Mosquito Larvicide Operations	5
2015 Projects worked on	6-7
Training/Education	7
Budgets	8
Zika Quick Facts	9
Brief History Ada County MAD	10

Mosquito Surveillance Operations

Surveillance is a key part of a Mosquito Abatement, as it allows us to track mosquito populations through sampling across the county and decide how best to use our resources to keep mosquitoes at manageable levels. This year's surveillance began May 1st and ended September 23rd. During the 2016 season our surveillance crews set 1,955 traps at 154 (6 of those being new) different locations throughout the county and caught a **total of 33,507 mosquitoes** over the 21 week surveillance season. Once caught they are then individually identified to spe-

cies and counted, the *Culex pipiens* and *Culex tarsalis* are then grouped into pools of up to 50 mosquitoes to be tested for the West Nile Virus. Of our 33,507 mosquitoes caught, **8615 of those were West Nile Virus vector species**. We had a total of **13 pools come back positive for West Nile Virus**.

This season we continued to search for the presence of *Aedes aegypti* by setting oviposit traps in nurseries that import plants from states where the *Aedes aegypti* have become a problem in the U.S. We chose those sites because of the possibility of eggs or

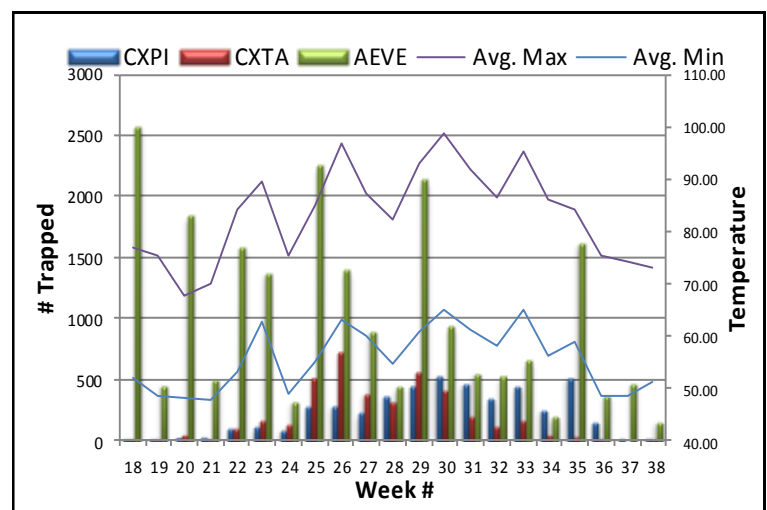
adults hitchhiking on the imported plants. The *Aedes aegypti* can carry dengue fever, chikungunya and yellow fever. We will continue to be proactive in our efforts to be on the lookout for this vector in Ada County. For the second year in a row, our findings were negative over our sampling period and we will continue to keep an eye out for this mosquito in future seasons. Next season we will be doing more trapping using different traps, like BG Sentinel trap in addition to oviposit traps.

Brock Palen, Mosquito Division Coordinator

Mosquito Species Found in Ada County...

Our most common mosquito species found this year was no different than in previous seasons, with high numbers but half as many as compared to 2015, this season was *Aedes vexans* (AEVE) (n=21,140) which seemed to follow after rain events for their peak weeks. West Nile Virus vector mosquitoes were also found this year, *Culex tarsalis* (CXTA) (n=3925) and *Culex pipiens* (CXPI) (n=4688). *Culex pipiens* was also reduced in counts this year by half from 2015, which we believe was a direct result in better manage-

ment in the drop inlets (DI's)/ storm drains where they are commonly found via a more thorough training of field technicians in 2016. We did not find any new species of mosquitoes this year, but did set out different trap types, which we will continue into next year.

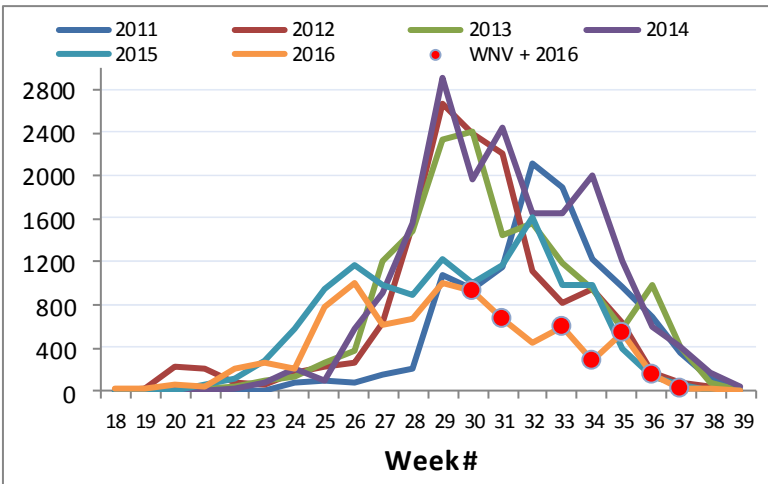
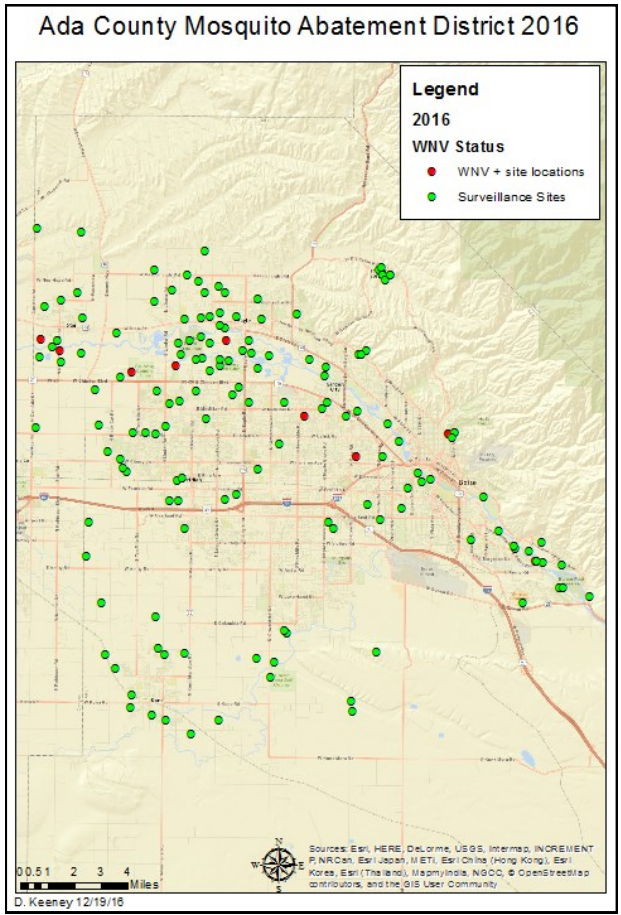


Three most common species found in Ada County in 2016.

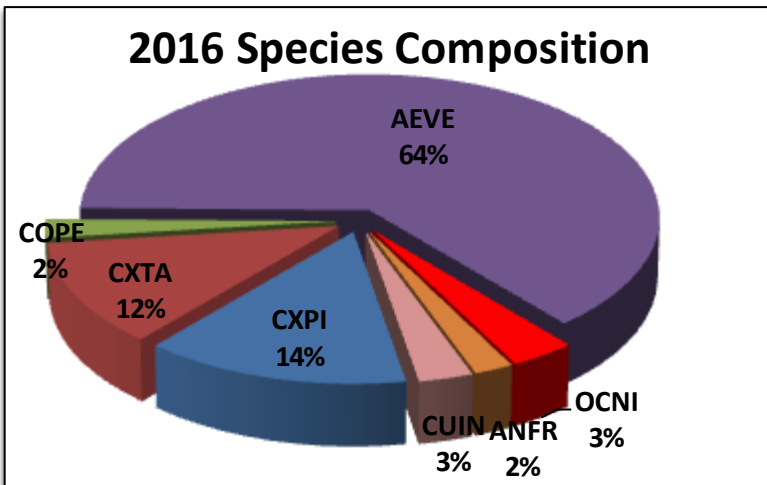
West Nile Virus in Ada County

West Nile Virus was first found in Ada County in 2005, 10 years, later we still have it. In 2016, we found a total of 13 positive pools, which is a decrease from the last 2 years, but this is also expected with the cyclical nature of the virus observed historically in our district and ecological conditions. The 1st positive pool occurring on July 26th, 2016, which is a few weeks later than the last few

years. In 2016, 85% of the positive pools were *Culex pipiens*. All locations were treated within same day of finding WNV through adulticide applications following our best management plan.



Culex species trapped in Ada County and WNV + week hits in 2016.



Ada County History of West Nile Virus

Year	# of WNV positive pools	Week of first onset of WNV +	# of <i>Culex</i> spp. sampled/tested
2016	13	30	8615
2015	28	27	12,636
2014	50	30	18,538
2013	90	28	15,602
2012	19	28	14,503
2011	0	NA	11,408
2010	0	NA	5519
2009	38	29	10,466
2008	3	31	5957
2007	5	29	4034
2006	52	21	3599

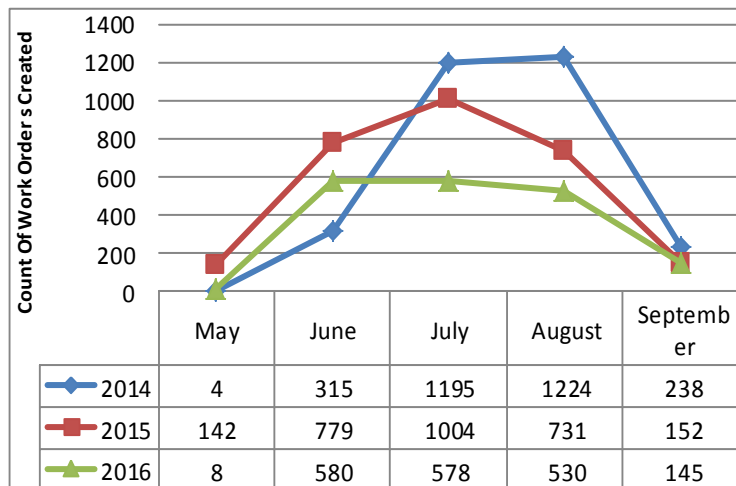
Mosquito Nightly Adulthood Control Operations

The 2016 mosquito adulthood sea-
 son didn't really start until June
 unlike in 2015, when it began in
 May. The Adulthood crew com-
 pleted **1841 total work orders**, of
 which 585 were trap locations and
 out of those locations, 13 were a
 result from a positive WNV trap
 within the county. There was a big
 difference between 2015 work
 order season and 2016 work order
 season of 1100 less work orders
 requested in 2016. The surveil-
 lance requested work orders for
 2016 were lower than 2015 by
 271 less requests. With less work
 order requests being made in
 2016 by the public and through
 surveillance, it resulted in an esti-
 mated 20,147 less acres being
 treated for adult mosquitoes. The
 first positive hit for WNV was in
 week 30. Two of the surveillance
 traps came back positive multiple
 times in which we responded im-
 mediately to help knock out the
 mosquitoes potentially carrying

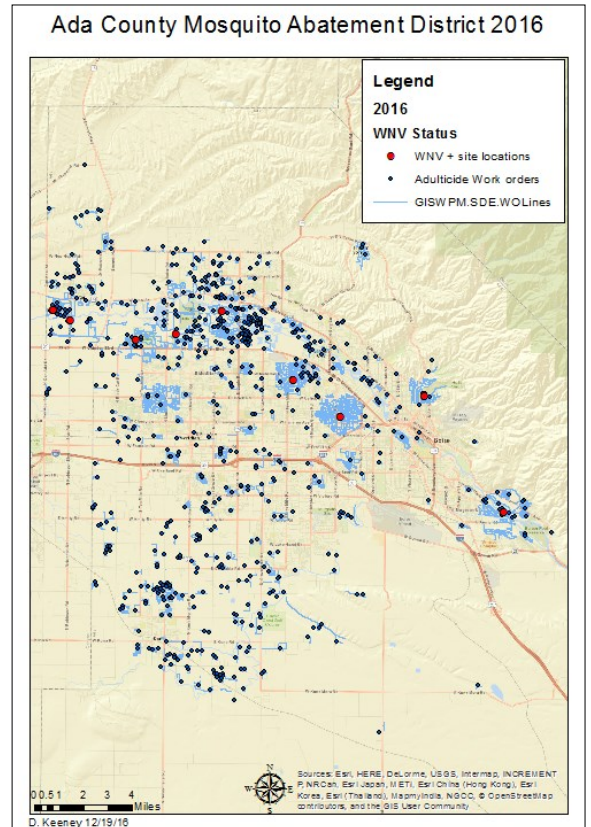
the virus. When a trap test-
 ed positive for WNV, we
 used ULV fogging in a one
 square mile around that
 trap location. July was the
 peak of the season for the
 adulthood crews.

This season the city with
 the most public service re-
 quests was Eagle with 495,
 followed by Meridian with
 470, Boise with 346, Kuna
 with 255, Star with 145,
 Nampa with 69, and Gar-
 den City with 61. Our 3
 adulthood mosquito trucks
 ran all season and complet-
 ed an estimated **64,087.90
 acres or 1611.4 lane miles**
 for the 2016 season. We
 also used the Badger (a
 type of fogger) mounted in the
 back of one of the trucks in the
 later part of the season in the Star
 and Eagle area by the river area.

At the beginning of the season we
 fogged at the lowest rate for ap-
 plications
 with mosqui-
 to adulthood
 chemical
 (permethrin),
 in mid-July
 we increased
 the rate to a
 mid-level rate
 of applica-
 tion, and in
 mid-Septem-
 ber we in-

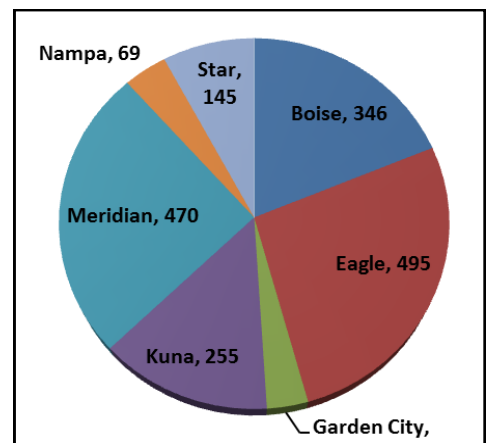


Adulthood work order requests since 2014 by month.



creased to a higher rate (however
 not the highest) in accordance
 with the label for better control
 following our best management
 plan.

*Charlie McNiel, Adulthood Crew
 lead*



Count of work orders by area in 2016.

Mosquito Daily Larvicide Control Operations



The 2016 season was a successful one for Ada County Mosquito Larvi-

cide crew. We worked hard all season and were very productive as reflected in our district data with less adult mosquitoes, less public service complaints and more work done with less dollars spent in chemical supplies (see budget page). We had a few crew member turnovers in the middle of the season, but that did not slow us down much, as we were able to utilize other licensed seasonal employees from the pest crews during their slow season to fill in our gaps and finish the season off strong. The Larvicide crew **mapped 9264 new sites**, bringing our **total sites monitored to 30,694**. The increase of mapped sites also increased the average weekly inspection sites for each larvicider from 250-300/week in 2015 to 300-350/week in 2016. The Larvicide crew **total**

inspections totaled 105,064 which lead to **68,000 treatments** for control of mosquito larva. **Total acres treated this year for the Ada County Larvicide crew was 756.77.**

This year the mosquito crew put together a new training program for the 2016 larvicide crew including a "Larvicide Olympics" course to pass prior to going into the field on their own. The new training program increased an average of 49 hours/person. The new training program was very productive, for example, the previous year's licensing pass rate for the first time exams would be an average of 50%. This year had an 80% pass rate for the first time testing exams. This training program will be carried out into the next seasons with any new employees that are hired onto

the crew. Also any returning crew members will be going through an extensive refresher course. Additionally, we will work on this training program and an implementation of a short course for mid-season hires to help make them successful applicators.

The property owners helped out a lot this year, we had 269 larvicide work orders, and this helped us find problem areas that may not have been mapped or often times overwatering of lawns that had standing water which was an educational opportunity to residents about mosquito prevention.

Robin Howard, Larvicide Crew Lead



Above: Some of the crew by the end of the season.

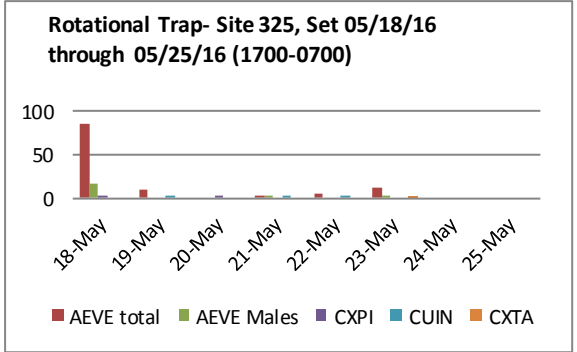


Left: New crews training for use of backpack applications in the field.

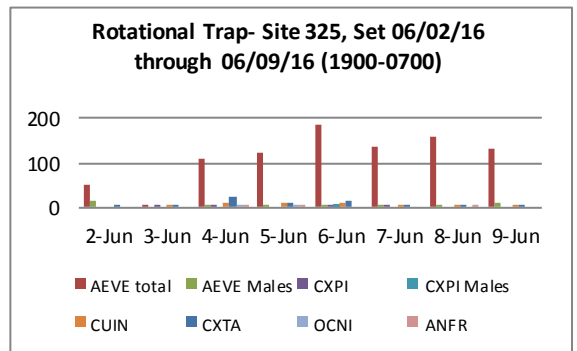
Projects worked on in 2016

Oviposit Trial Trap– We placed 15 traps in 2 different locations in the district for 1 and 2 weeks each time (3 times). We chose these two locations due to the fact that the merchandise they receive was shipped from states that are known to have the *Aedes albopictus* and the *Aedes aegypti* mosquito, this gave us the opportunity to investigate the possibility of transportation of the *Aedes aegypti* and *Aedes albopictus*. We were not able to complete the trial due to loss of seasonal field staff mid-season, however results were that we found larvae in a trap location, but could not identify due to mortality.

Rotational Trap Project– This project was set out to identify areas where historically known mosquitoes were a problem or frequent public complaints. Rotational traps allow us to monitor mosquito abundance during a given day or a up to week time period. This gives us information on the best time of night to treat for the highest abundance of mosquitoes or to determine if the mosquitoes are hatching as a result of irrigation practices or environmental conditions.



Examples of trapping data using rotational trap over a week period at the same site, different weeks.



Above is a map showing the placement of the oviposit traps at Cloverdale Nursery.

Projects worked on in 2016 continued...

Test Bike project– This project was set out to determine efficiency and planning for a more productive, environmentally friendly way to treat DI’s in subdivisions and urban areas where there are a large number of DI’s. This project was only about 40% productive this year due to the software program in our current system not working effectively and stalling out. In the next season we will have a new larvicide pro-

gram and the bike project is expected to be better success and more efficient way to treat DI’s.



Above: Staff working the Western Idaho Fair for educational opportunities to the public.

Left: Testing software program and DI on bikes

Training Opportunities and Continuing Education

Continuing education and training of staff is a primary objective of our program in order to use the best management practices available. The majority of training also contributes for recertification credits through the Idaho State Department of Agriculture to continue to carry a Professional Applicators license in the state of Idaho.

<u>2016 Seminar/Conference/Training</u>	<u>People Sent</u>	<u>Hours</u>	<u>Total</u>
AMCA Annual meeting	1	32	32
ACMAD in house seminars (Adapco/Valent)	13-16	12	180
Space Cushion Driving	17	4	68
ACMAD in house training (applicators)	13	130	1690
IMVCA Spring Workshops	14	8	112
NWMVCA Spring Workshop (WA)	2	12	24
NWMVCA Fall Conference (OR)	2	16	32
Idaho Ag Expo	2	4	8
Idaho Pest Expo (ECA of ID)	2	12 (+4)	16
Software training (Access)	1	8	8
SWIWCA Fall Seminar	8	8	64



Field Technicians learning to dip for larvae.

Total Hours in Training for 2016:

2234

Budget totals

The mosquito abatement district's budget is based on general property taxes primarily (95%) and a small portion of sales tax and personal property taxes from the state since it is a special taxing district within Ada County. This

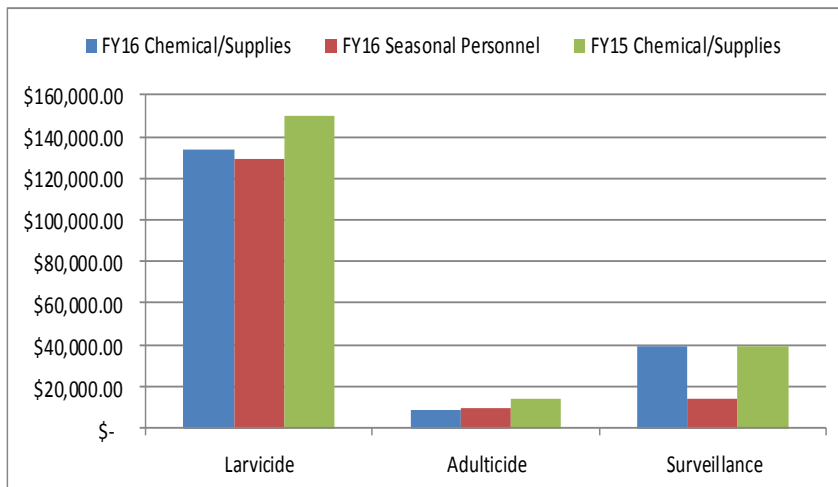
season we spent less money on chemical purchases even with more treatments (>20,000) by being more efficient and using best management practices.

FY15-16 District Revenues

Total \$1,033,557

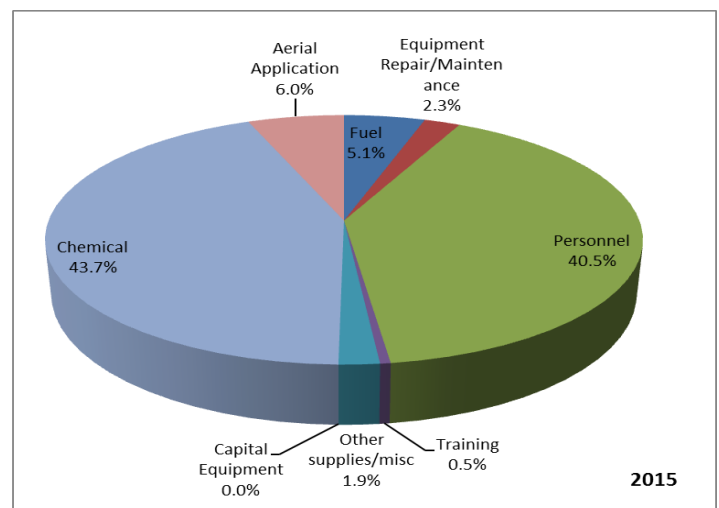
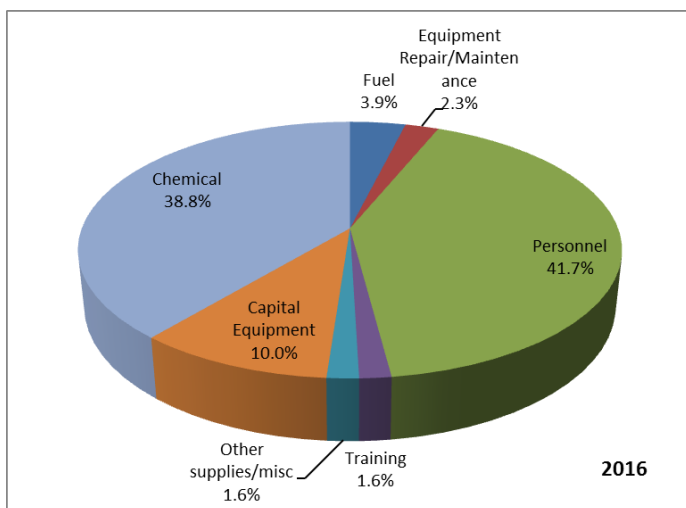
FY15-16 District Expenditures

Total \$973,095

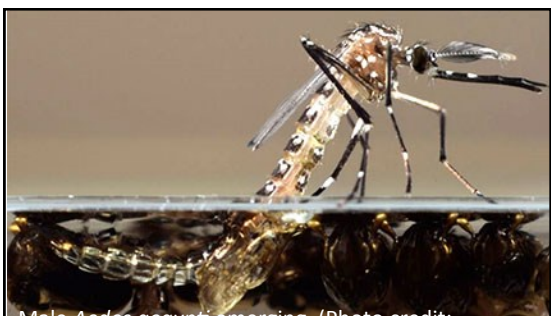


Most of program funding is spent in larvicide control efforts (79%) and then disease and surveillance (16%) monitoring and then finally adulticide control (5%) of the seasonal staff/chemical budgets.

Two year comparison of B- budget (Operations) Expenses only



Zika virus information, quick facts!



What we know:

- Zika is spread mostly by the bite of an infected *Aedes* species mosquito (*Ae. aegypti* and *Ae. albopictus*). These mosquitoes bite during the day and night.
- Zika can be passed from a [pregnant woman](#) to her fetus. Infection during pregnancy can cause certain birth defects.
- There is no vaccine or medicine
- Local mosquito-borne Zika virus transmission has been reported in the continental United States.

Do we have it in Idaho?

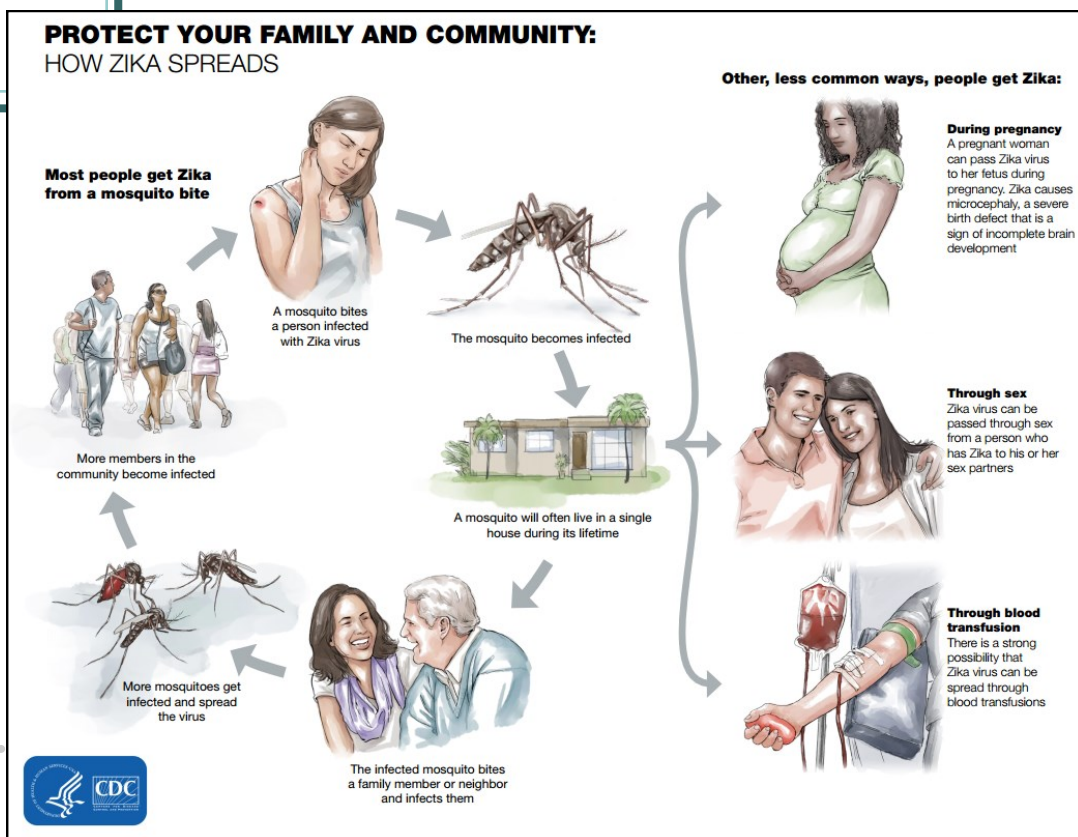
- To date, we do not have the vector of this disease in Idaho.
- There were **4 travel associated cases of Zika in Idaho** (where someone went to an area with local transmission and got infected but lives in Idaho where diagnosed).
- Ada County Mosquito Abatement District has been actively surveying for this mosquito in the last 2 years just in case importation may happen, but we have **NOT found** this species through our surveil-

lance as they are a tropical species. We will continue to be educated on this and help keep the residents informed. We will continue to monitor using some grant funding but will continue to focus on WNV surveillance and testing until further scientific verified information is discovered as there is still unknowns with the Zika virus.

(all information as of 12/20/2016)

There is still a lot to learn about this virus!

For more current information go to the CDC website at:
<https://www.cdc.gov/zika/>





Edited by: Desiree Keeney, Field Operations Manager
 Ada County Mosquito Abatement District
 975 E Pine Ave
 Meridian, Idaho 83642

Phone: 208-577-4646
 Fax: 208-577-4631

E-mail: weedandpest@adaweb.net



Education opportunity at the Western Idaho Fair

Mission Statement

The mission of Ada County Mosquito Abatement District is to control mosquitoes that are both a nuisance and potential vector of disease to Ada County residents.

Districts Brief History

Ada County's original Mosquito Abatement District (MAD) was the Three-Mile Creek District established in 1974, which included 12 sq miles between Cloverdale and Cole Roads and Franklin and Columbia Roads. There were several district annexations made over the next few decades, and in 2004 Ada County Board of County Commissioners agreed to incorporate and operate what was then called the Southwest Ada County Mosquito Abatement District. Today, the district is known as Ada County Mosquito Abatement District (ACMAD) and covers 406 sq miles, with the majority of the district covering major residential and urban areas.

Goals from 2016

The staff learned a lot from 2015 and looked at ways to improve our program for the 2016 season. One of the main priorities for our department to start this season was a better more structured training program for new field technicians. The winter between 2015-2016 resulted in a lot of planning, management, and teamwork which resulted in a successful mosquito control year.

1. More thorough training and skill building with seasonal staff to help achieve mission: **Goal met- all staff worked together to create a better training program. This program resulted in a much better retention of employees and testing for exams which returned better field work with less mosquitoes as a result.**
2. Increase Remediated sites by setting goals by larvicide area and track through computer program: **28 points created, computer software error, not completed**
3. Continue to work with

- Public Education Specialist to increase education and public outreach: **Assisted in the fair and parades, but no specific mosquito outreach, need to continue**
4. Improve mobile program software to be efficient, effective tool for field staff: **Goal not completed during the season, but through budgeting and planning, we should have new software program by 2017 field season.**

Goals for 2017

1. New software program implemented for 2017 season
2. Increase remediated sites by setting goals by larvicide area and track through computer program and fall treatment programs
3. Work on Bike Project implementation with new software
4. Continue to improve upon training program for start of year and mid year training of seasonal staff