



STATE OF THE **MOSQUITO**  
**MARKET REPORT**

2017

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# STATE OF THE MOSQUITO MARKET REPORT

2017

PCT's annual survey explores the growth of mosquito control revenue, the impact of Zika virus and how PMPs are integrating this service into their overall business.

*By Anne Nagro*

## THE SURVEY

The PCT 2017 State of the Mosquito Control Market survey was sponsored by MGK and compiled by Readex Research, a privately held research firm in Stillwater, Minn.

A sample of 2,321 owners, operators and executives of pest control businesses was systematically selected from the PCT circulation database. Data was collected from 224 respondents — a 10 percent response rate — via an online survey from Jan. 10-20, 2017. The margin of error for percentages based on the respondents who indicated their company locations offer mosquito control services is plus or minus 8.7 percentage points at the 95 percent confidence level. Results may not add up to 100 percent due to rounding.

## THE MARKET:

### SERVICE PROVIDERS + REVENUE RISE

**N**ot only do more pest management companies now offer mosquito control — 55 percent this year compared to 38 percent in 2014 — but revenue for this service is on the rise as well, according to the PCT 2017 State of the Mosquito Control Market survey.

In 2016, 65 percent of respondents saw the percentage of mosquito control revenue increase at their locations compared to the year prior with nearly one third (32 percent) reporting a greater than 15 percent jump.

McNeely Pest Control in Winston-Sa-

lem, N.C., and Swat Pest Management in Evansville, Ind., had mosquito control revenue double in 2016. Bug Doctor, an Anticimex company in Paramus, N.J., saw “almost triple-digit growth,” reported President Stuart Aust.

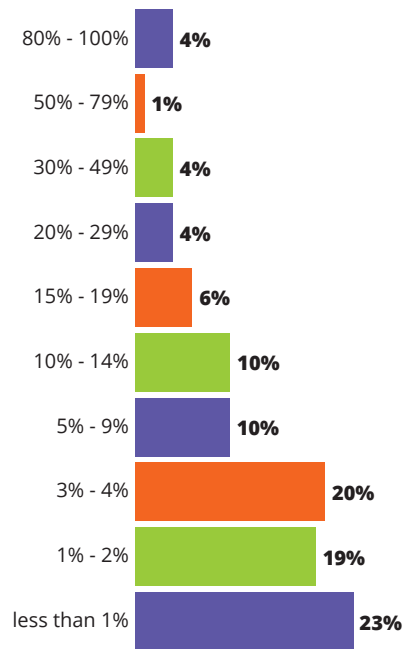
Last year's revenue gain “was fabulous,” recalled Nick Lupini, president of Loyal Termite & Pest Control in Henrico, Va. “Our two biggest areas of growth are bed bugs and mosquito control; that's what people are concerned about and that's where we're growing the fastest,” he explained.

Still, mosquito control accounts for a

small percentage of overall service revenue. According to the survey, 23 percent of respondents said it represented less than 1 percent, 19 percent said it made up 1 to 2 percent, and 20 percent said it was 3 to 4 percent of total service revenue.

This amounted to less than \$1,000 for 18 percent of pest management companies; an equal percentage had revenue of \$5,000 to \$9,000. Others reported that 2016 mosquito control revenue ranged from \$1,000 to \$2,499 (15 percent), \$2,500 to \$4,999 (14 percent) and \$20,000 to \$49,999 (12 percent). ●

**Percentage of total 2016 revenue from mosquito control services**

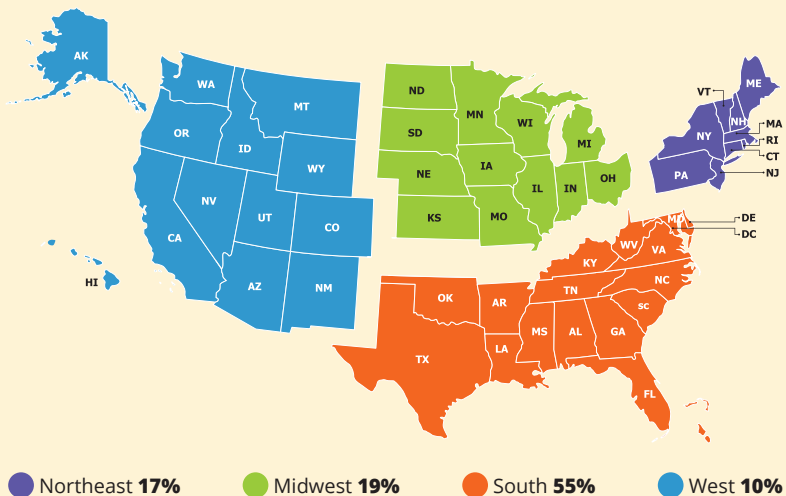


Number of respondents offering mosquito control services: 123

**THE LOCATION**

The majority of survey respondents — 55 percent — operate businesses in the South, followed by the Midwest (19 percent), Northeast (17 percent) and West (10 percent).

**Geographic location of survey respondents**



Number of respondents offering mosquito control services: 123

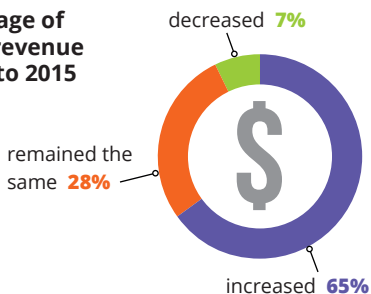
**Companies offering mosquito control services**



	2017	2016	2015	2014
yes	55%	54%	49%	38%
no	45%	46%	51%	62%
	Number of respondents: 224	Number of respondents: 428	Number of respondents: 192	Number of respondents: 381

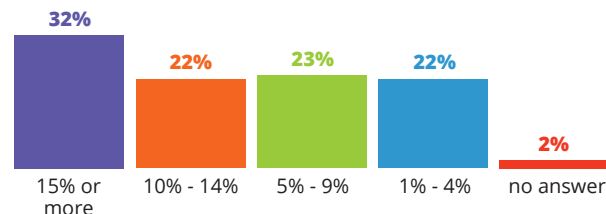
Source: PCT mosquito market surveys 2014-2017

**Change in percentage of mosquito control revenue in 2016 compared to 2015**



Number of respondents who offered mosquito control services before 2016: 100

**Amount that mosquito control revenue increased in 2016 compared to 2015**



Number of respondents who saw an increase in 2016 mosquito control revenue: 65

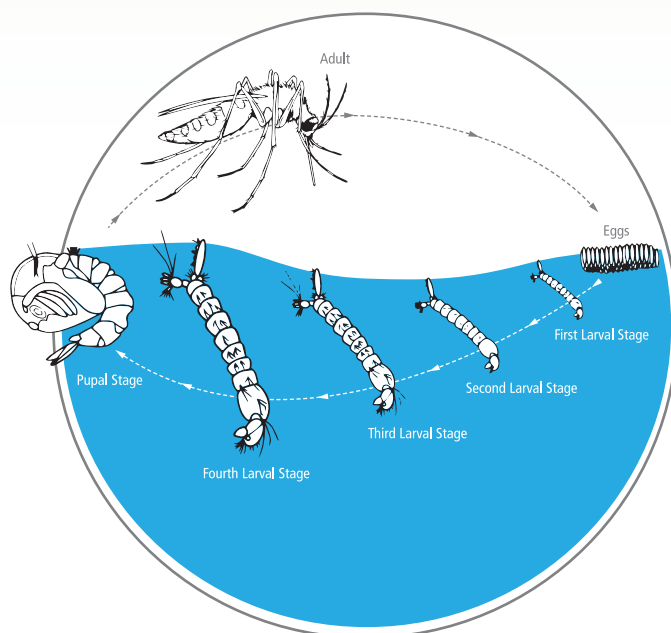


# FIGHTING MOSQUITOES:

## What you should know today

FOCUS ON MOSQUITO CONTROL is intensifying from increased public awareness of the mosquito as a disease vector. This focus is often combined with real, sometimes emotion-laden, public concern relating to mosquito control efforts. What was once considered a nuisance pest, can now present as a grave public health concern. Mosquito control professionals, which include Pest Management Professionals, are truly the front line in this fight. Now is the time to use any and all available tools in the most efficient manner.

Mosquitoes evolve quickly to changes in their environment, such as the presence of insecticides, since they are capable of producing many generations in a short time. One female mosquito may produce between one thousand and three thousand eggs in her lifetime. Within a few weeks, thousands of eggs will have become adult females laying eggs. The high numbers of individual mosquitoes in field populations combined with rapid reproduction results in their ability to evade control at an alarming rate. Therefore, effective treatment plans are multi-pronged, using an IPM approach starting with surveillance and moving towards chemical treatments that target the mosquito at various life stages, which includes the use of an adulticide, synergist and insect growth regulator.



### MOSQUITO LIFE CYCLE

Complete metamorphosis in four stages: egg, larva, pupa and adult. The entire lifecycle is completed in 7 days to several weeks depending on environmental conditions.

### WHAT'S UNIQUE About *Aedes Mosquitoes – aegypti and albopictus*

- Only fly a few hundred meters from emergent sites
- Small container breeders
- Lay individual eggs usually near the waterline
- Eggs are laid in multiple sites (skip-oviposition)
- Eggs can last for years and remain viable
- Active daytime biters, although they will also bite at dawn and dusk

# EFFECTIVE TREATMENTS

## SURVEILLANCE & EXCLUSION

Inspect the entire area for harborage and breeding sites. Remove all sources of standing water and any other potential breeding sites. It is important to include the customer in this process and communicate the importance of correcting all conducive conditions.

## ADULTICIDE

Adulticides are important because they provide immediate relief from an adult population of biting mosquitoes. For best results, choose an adulticide with microcap technology. Microcaps provide controlled release of the active ingredient, thereby providing control for an extended period of time on difficult surfaces.

## SYNERGIST

Synergists are not insecticides by themselves but they enhance insecticide efficacy. Synergist use combats insecticide resistance present in the mosquito population. Piperonyl butoxide, commonly referred to as PBO, is one of the most common synergists used in insect control today. It prevents the breakdown of the insecticide in the insect which leads to increased efficacy at lower concentrations.

## INSECT GROWTH REGULATOR

Insect growth regulators (IGRs) have a very different mode of action than adulticides, affecting the hormonal system of the insects rather than killing them outright. One type of IGR is a juvenile hormone (JH) mimic. Pyriproxyfen is a JH mimic and can prevent the transition of larvae into adults, effectively ending their life cycle in the pupal stage. It can also sterilize adult mosquitoes and reduce the number of viable eggs that are laid.



MGK is unique in the insect control industry. For over 100 years, we have been a leader in the lab and in the field, developing innovative and effective products, including a broad portfolio of mosquito control products for residential, commercial, and equine structures. Partner with us to get the results you need in the fight against mosquitoes.





## THE MOTIVATION: CUSTOMER RETENTION

**W**hy offer a service that makes for such a small (albeit growing) part of the business? Because it's important to provide "one-stop shopping" for existing customers, said Stuart Aust, Bug Doctor. Mosquito control is "definitely a viable revenue stream" and can attract new customers, but "we really just want to be there for our client base," he explained.

Nick Lupini of Loyal Termite & Pest Control began offering mosquito control after learning some of his customers had other companies performing this service.

That's something Shawn Van Gorp of Menninga Pest Control

in Pella, Iowa, aims to prevent by introducing mosquito control service this spring. "I never want to invite the competition into my current, loyal customer's home. Anything that the market needs I want to be able to provide," he explained.

As a "value-add service," mosquito control provides one more touch point with customers, added Jackie Thornton, owner of Alvin Pest Control in greater Houston.

And "the stronger the relationship with the client, the more likely you're going to have long-term client retention," said Scott McNeely, McNeely Pest Control. ●

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## THE OUTLOOK: STEADY GROWTH

**T**he majority of PMPs (76 percent) anticipate revenue generated from mosquito control services to increase in 2017, found the PCT 2017 State of the Mosquito Control Market survey. While that is down from 85 percent who expected revenue to increase in 2016, it is still up significantly from the 55 percent who anticipated an increase three years ago.

"I'm very positive and I think we're going to have an increase" in mosquito control revenue this year but "I don't think it will be as extreme (of an increase) as 2016," said Scott McNeely of McNeely Pest Control.

Swat Pest Management is doing "everything we can to get a 50 percent increase over last year," which is an ambitious goal given the service was "really successful" in 2016, said Service Manager Shaun Waters.

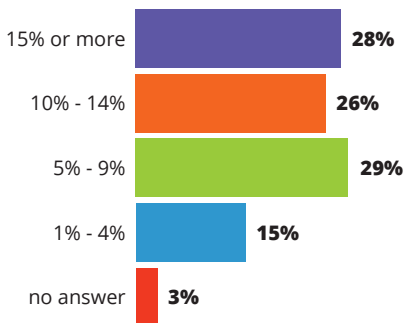
According to the survey, nearly three-quarters (71 percent) of PMPs agreed or strongly agreed that mosquito control is a significant growth opportunity

for their business.

This year, 29 percent of survey respondents anticipate mosquito control revenue to increase 5 to 9 percent; 28 percent were planning for an increase of 15 percent or more and 26 percent anticipated a jump of 10 to 14 percent.

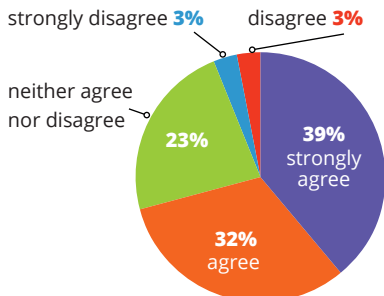
Weather definitely will be a factor. Sarah MacGregor, president of Dragon Mosquito in Brentwood, N.H., said growth “will depend on the drought” in her region. Drier conditions generally mean fewer mosquitoes and less demand for the service she provides to municipalities and residential customers. Wetter weather could be a boon for business. “It’s impossible to predict what will happen” at this point, she said. ●

**Expected increase in percentage of mosquito control revenue in 2017 compared to 2016**



Number of respondents who expect mosquito control service revenue to increase in 2017: 94

**Agree or Disagree: Mosquito control represents a significant growth opportunity for my business**



Number of respondents offering mosquito control services: 123



Fear of the Zika virus had a significant impact on mosquito control revenue growth in 2016, reported 59 percent of PMPs in the PCT 2017 State of the Mosquito Control Market survey.

Last year, the disease was a top news story and this caused “a real uptick” in revenue for Bug Doctor’s mosquito control program, said Stuart Aust. The increase came from residential customers as well as condominium and townhouse associations that “were getting pressure from their board of directors” to take steps to protect residents, he said.

Commercial facilities were concerned about the potential liability of Zika virus, explained Doug Longfellow, president of Sarasota-Fla.-based NaturZone Pest Control, which specializes in commercial work. Mosquito control service gave facility managers the “peace of mind” that they’d “done the proper due diligence to protect their employees,” he said.

According to the survey, 87 percent of PMPs believe media coverage of Zika virus will prompt more customers to seek professional mosquito control services in 2017. But regular, sustained news coverage is needed to keep the service growing long term, said Longfellow, who recalled that mosquito control revenue spiked after West Nile virus hit the U.S. 20 years ago and then waned when the virus stopped making headlines.

**THE NUMBERS: ZIKA + WEST NILE VIRUS**

**5,139** — total cases of Zika virus reported in the U.S. between January 1, 2015 and March 15, 2017

**4,842** — cases of Zika virus in travelers returning to U.S. from infected areas

**222** — cases of Zika virus acquired in U.S. through local mosquito-borne transmission

**75** — cases of Zika virus acquired in U.S. through other routes like sexual transmission

**38,188** — total cases of Zika virus reported in U.S. Territories between Jan. 1, 2015 and March 15, 2017

**2,038** — total number of cases of West Nile virus reported in the U.S. in 2016

**94** — deaths caused by West Nile virus in the U.S. in 2016

Source: Centers for Disease Control and Prevention





More than half (54 percent) of PMPs said Zika virus caused the most concern for people in their markets; 37 percent cited West Nile virus.

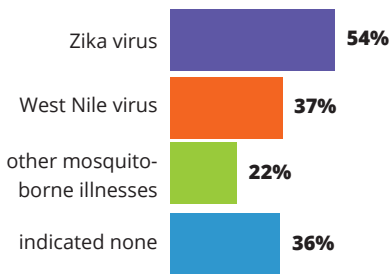
In New Hampshire “we’re more concerned about EEE (Eastern equine encephalitis virus) than any other ar-

bovirus,” said Sara McGregor, Dragon Mosquito. But the company’s municipal clients are ready to respond should Zika virus or the mosquitoes that transmit it — *Aedes aegypti* and *Aedes albopictus* — get established there “thanks to our work with West Nile virus,” she said.

Sixty eight percent of PMPs agree or strongly agree that customers understand the public health threat posed by mosquitoes. Still, more than one-third (36 percent) said that people in their markets are not concerned about mosquito-borne illnesses. ●

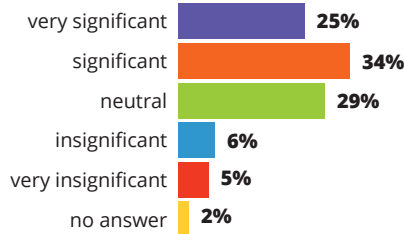


**How concerned is the public about each of the following in your market area?**



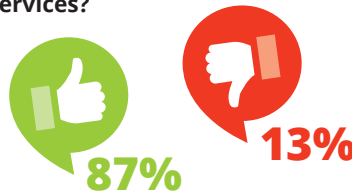
Multiple answers; Number of respondents offering mosquito control services: 123

**Impact of Zika virus on 2016 mosquito control revenue growth**



Number of respondents who had an increase in 2016 mosquito control revenue: 65

**Will media coverage of Zika virus prompt customers to seek professional mosquito control services?**



Number of respondents offering mosquito control services: 123

**Agree or Disagree: Customers understand the public health threat posed by mosquitoes**



Number of respondents offering mosquito control services: 123

**THE ZIKA FORECAST:  
WHAT TO EXPECT IN 2017**

Last year, local mosquitoes transmitted 222 cases of Zika virus in Miami, Florida (216) and Brownsville, Texas (6), reported the Centers for Disease Control and Prevention.

These likely will “continue to be the areas of highest risk” for the disease in 2017, stated Andrew Monaghan of the National Center for Atmospheric Research in an email and whose computer model accurately predicted where local transmission of Zika virus would occur in 2016.

Monaghan said several conditions must be met for local mosquito-borne transmission of Zika virus to take place:

1. The virus must be present in humans (either endemic or introduced through travelers arriving from endemic areas).
2. The climate must be adequate for *Aedes* mosquitos to become abundant enough to come into contact with humans and ensure they live long enough to incubate the virus and complete their egg-laying cycle. The most suitable climates are where warm temperatures vary little between daytime

and nighttime with adequate rainfall and humidity. But because *Aedes* mosquitoes are good at finding microclimates in otherwise unsuitable climates, they can survive in arid conditions and where ambient temperatures are not ideal.

3. Humans must be present and exposed enough to raise the probability they will be bitten. Urban areas with high population density increase the likelihood that the mosquitoes will take blood meals from multiple humans thus transmitting the virus more effectively.

Socioeconomic conditions determine whether or not a large-scale Zika outbreak will occur, suggested Max Moreno-Madriñán of Indiana University–Purdue University Indianapolis and independent research entomologist Michael Turell in the *Journal of Medical Entomology*. They believe the lifestyle, housing infrastructure and sanitation conditions in the U.S. make a large-scale outbreak unlikely here.







## THE CUSTOMER: COMMERCIAL WORK INCREASES

Customer requests for mosquito control service increased (either somewhat or significantly) in 2016 from the year prior, according to 70 percent of PMPs who participated in the PCT 2017 State of the Mosquito Control Market survey.

Most PMPs (93 percent) performed this service at residential properties; 72 percent — a 10 percent increase from 2015 — did so at commercial accounts as well.

NaturZone Pest Control provided the service at schools, daycares, high-end

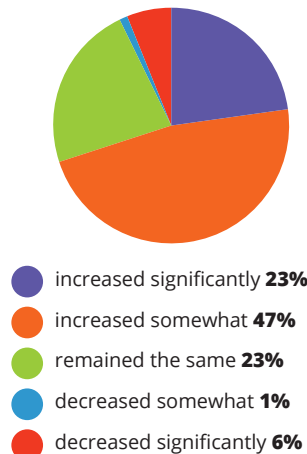
office buildings and health-care facilities like hospitals, nursing homes and adult living facilities.

“It’s unfortunate, but in this day and age everybody’s trying to cover their back” from a liability standpoint, said Stuart Aust, Bug Doctor, which predominantly serves the commercial sector. Facilities don’t want to be accused of negligence when “you know there’s a potential (health) issue and you don’t do anything about it,” he said.

To help grow its mosquito business this year, Swat Pest Management is

reaching out to commercial facilities to treat spaces like outdoor smoke tents and walking paths so employee aren’t “being eaten alive” while on break, said Shaun Waters. ●

Number of mosquito control service requests in 2016 compared to 2015



Number of respondents involved in mosquito control services before 2016: 100

Types of mosquito control service accounts			
	2017	2016	2015
residential	93%	97%	92%
commercial	72%	64%	62%
government	23%	15%	23%
other	1%	0%	1%
	Number of respondents offering mosquito control services: 123	Number of respondents offering mosquito control services: 233	Number of respondents offering mosquito control services: 95

## THE GOVERNMENT: SEEKING SOME ASSISTANCE

Nearly a quarter (23 percent) of pest management locations provide government accounts with mosquito control service and last year 11 percent were approached by local, state and federal agencies to assist with community mosquito control efforts, according to the PCT 2017 State of the Mosquito Control Market survey.

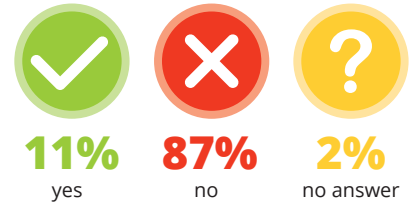
Some mosquito control districts have “a time of inundation” and cannot get to all areas in a timely manner to control the

pests so they’ll contract with companies to assist during these periods, said Jackie Thornton, Alvin Pest Control.

One town reached out to Swat Pest Management last year, reported Shaun Waters. It’s “not something we’re ready to do just yet,” but the company is preparing to offer this service in 2018, he said.

Dragon Mosquito has more contracts this year for municipal mosquito surveillance, mapping and control than last, said Sarah MacGregor. ●

**Were you approached by local, state, or federal agencies in 2016 to assist with mosquito control?**



Number of respondents offering mosquito control services: 123

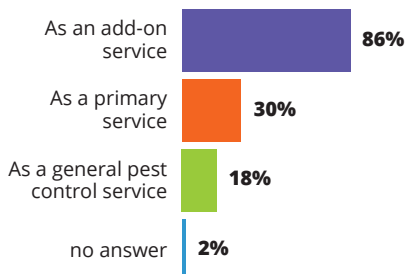
## THE SERVICE: BASICS REMAIN THE SAME

Most PMPs (79 percent) provide mosquito control for special events, such as for outdoor weddings and picnics; more than half (52 percent) offer ongoing mosquito monitoring and/or maintenance programs, found the PCT 2017 State of the Mosquito Control Market survey.

A service may involve targeted applications of mosquito adulticides (74 percent), larval control (55 percent), habitat modification (35 percent) and/or automatic mosquito misting systems (18 percent). Pest management professionals also cited the use of insect growth regulators to break the mosquito life cycle where habitat modification is difficult.



### How do you offer mosquito control service?



Multiple responses; Number of respondents offering mosquito control services: 123

Service frequency may be bimonthly, monthly or every two months. Mosquito control season can run from March to October depending on the region.

Typically, mosquito control is offered as an add-on service, reported 86 percent of PMPs. Bug Doctor’s full-service mosquito control program is billed separately. “We want to be compensated for our time and efforts, the material involved. It’s typically not a \$50 extra service,” explained Stuart Aust. “You’ve got to make a profit at the end of the day or you are not going to be doing this for too long,” he reminded.

Others integrate mosquito control into tiered service bundles. Loyal Termite & Pest Control’s Silver Shield program combines mosquito and general pest control, which adds one more visit to quarterly service during mosquito season. “We found that it works perfectly for us,” said Nick Lupini.

Alvin Pest Control’s bundled mosquito, flea and tick control program requires an annual contract and customers are billed automatically each month. Paying a small monthly amount — compared to a large annual lump sum — makes it “not such

a hard decision” to renew the service, said Jackie Thornton.

Green pest management may be trending, but 35 percent of PMPs were neutral on whether green/natural products are increasingly valuable to mosquito control efforts.

The growth of McNeely Pest Control’s green mosquito barrier service is “markedly lower than our traditional service,” said Scott McNeely. “Most people just don’t

want to have mosquitoes. They’re more concerned with the disease potential or inconvenience or nuisance of the mosquito than they are the risk associated with the use of a pesticide,” which technicians address through customer education, he said. Less pesticide is needed when clients take an active role in preventing and eliminating mosquito breeding sites on their properties, McNeely explained.

Teaching customers how to do this

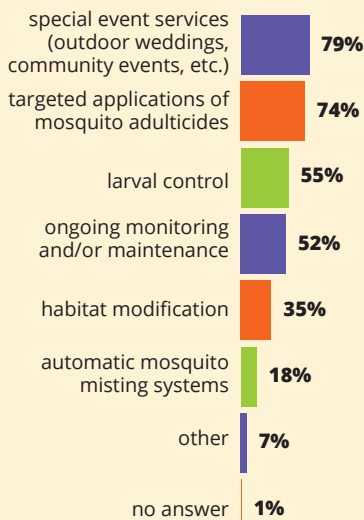
and setting expectations for the service (population *reduction*, not *elimination*) helps minimize callbacks, said PMPs who responded to the survey.

According to the survey, 34 percent of PMPs reported zero callbacks for mosquito control; 30 percent had a 1 to 4 percent callback rate.

Most (88 percent) said the effectiveness of mosquito control services today is better or much better than five years ago. ●



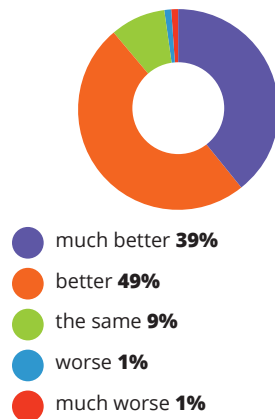
**Types of mosquito control services offered**



Multiple responses; Number of respondents offering mosquito control services: 123

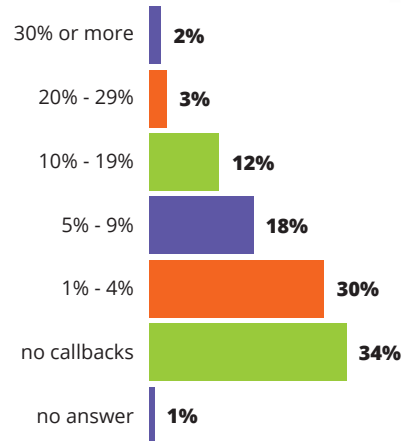


**The change in effectiveness of mosquito control services compared with five years ago**



Number of respondents who have offered mosquito control services for at least five years: 85

**Typical callback rate for mosquito control services**



Number of respondents offering mosquito control services: 123

## THE EQUIPMENT: BUDGETS DECLINE MODESTLY

PMPs planned to purchase backpack sprayers (60 percent), foggers (37 percent) and spray rigs (33 percent) for mosquito control programs in the next year, according to the PCT 2017 State of the Mosquito Control Market survey.

Half expected their budgets for mosquito application equipment to increase in 2017, down from 61 percent in 2016. ●

Anticipated change in budget for mosquito control application equipment		
	2017	2016
increase	50%	61%
remain the same	43%	36%
decrease	5%	2%
no answer	2%	1%
	Number of respondents offering mosquito control services: 123	Number of respondents offering mosquito control services: 233



# NyGuard<sup>®</sup> AGAINST Aedes Mosquitoes



NyGuard IGR kills Aedes mosquito larvae before they become breeding, biting adults. NyGuard IGR larvicide application to contained water, according to label use directions, prevents the development of adult Aedes mosquitoes. NyGuard may also be tank mixed with an adulticide, such as Onslaught<sup>®</sup> FastCap, and applied with a backpack mist blower for best results.

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