SPECIAL REPORT:

CANNABIS ODOR CONTROL

Byers Scientific & Manufacturing
Industrial Odor Management

CANNABIS BUSINESS TIMES

ODOR CONTROL EDUCATION

Odor is a powerful force. A simple waft from a fresh pot of coffee can be enough to excite your senses and get you ready for your day. The first whiff of fresh cut grass signals the arrival of spring. And a sniff-and-touch test is still a standard for determining when cannabis has been sufficiently cured.

Odor is also powerful in that it can cause headaches, both figuratively and literally, for you and your business. A complaint about a smelly grow facility or extraction lab can (and often does) quickly escalate from a neighborly squabble to civil suits, fines and regulatory crackdowns.

Unfortunately, odor control is grossly misunderstood. For example, significant differences exist between odor *masking* and *mitigation*, as well as between the effect of each on your cultivation operation; nearly a quarter of cultivators, however, are unaware of the differences, according to the research behind this "Special Report: Cannabis Odor Control." Terms like *misting* and *vapor phase technologies* will cause nearly 75% of cultivators to scratch their heads as well; just 25% of cannabis cultivators know the difference between those two odor-masking and -control methods.

This is why Byers Scientific & Manufacturing has partnered with *Cannabis Business Times* to support vital research in this *first-ever deep dive into cannabis odor control*, as well as the implications cultivators face when odor becomes an issue for neighbors and/or municipalities.

As cannabis cultivation proliferates throughout North America and beyond, odor control becomes a more pressing concern. Communities unfamiliar with, and often wary of, cannabis don't typically welcome cannabis odors with open arms. Even those municipalities that do embrace cannabis businesses may turn up their noses at the stench. In fact, nearly 1 in 5 research participants said they have received complaints from neighbors or the community about cannabis odor. Today, having an odor control plan is often a requirement to obtain a permit or operating license.

We started Byers Scientific & Manufacturing to leverage next-generation odor control solutions to join like-minded entrepreneurs and corporations working to leave our globe in a healthy state for future generations. In the cannabis industry, we observed a significant need to educate cultivation businesses about odor mitigation and the environmental and financial risks stemming from misinformation or a lack of knowledge about available solutions.

We are pleased to support *Cannabis Business Times* in this effort to learn about your odor-related challenges and needs, so that together we can better serve you and other cultivation and processing businesses in building a better, and better smelling, cannabis industry.

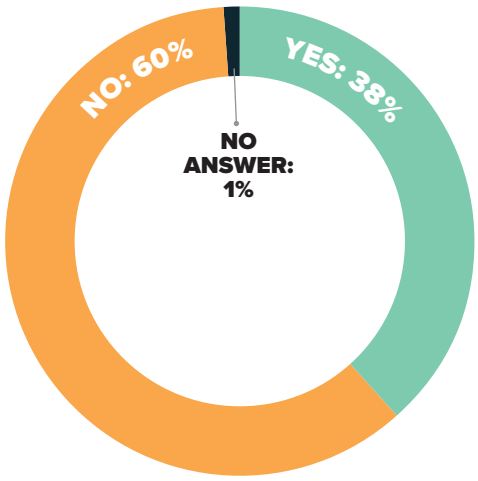
"A COMPLAINT ABOUT A SMELLY GROW FACILITY OR EXTRACTION LAB CAN (AND OFTEN DOES) QUICKLY ESCALATE FROM A NEIGHBORLY SQUABBLE TO CIVIL SUITS, FINES AND REGULATORY CRACKDOWNS.

MARC BYERS
OWNER AND PRESIDENT
BYERS SCIENTIFIC & MANUFACTURING

PHOTO COURTESY OF BYERS SCIENTIFIC & MANUFACTURING

ODOR CONTROL: A TOP PRIORITY

Have odor concerns influenced your organization's decisions on where to locate its cultivation and/or processing operations?



Note: Not all percentages will add up to 100% due to rounding.

Cannabis cultivators face many challenges unique to their profession, especially when compared to other agricultural crops. One prime but often understated example of this is odor control. Cannabis's pungent odor is not universally loved. As cannabis becomes increasingly integrated into communities throughout North America, odor control issues have made their way into courthouses in several high-profile lawsuits (see p. S7), as well as into state and local regulatory frameworks.

No quantitative data has existed, however, to explore the impact that odor has on cultivation businesses and related regulations. Until now.

Here, in the first-ever "Special Report: Cannabis Odor Control," *Cannabis Business Times* explores odor control in-depth. Based on a study conducted by leading research organization Readex Research and made possible with support from Byers Scientific & Manufacturing, this report sheds light on the technologies that cultivators are using and the best practices they are employing for being responsible neighbors in their communities.

Research Methodology: The data on the following pages was collected by Readex Research via an online study, which was sent to all emailable, active, qualified subscribers to *Cannabis Business Times* magazine and/or e-newsletter located in the U.S. or Canada, from March 8 to March 25. Between March 15 and March 25, *CBT* also posted a survey link in its e-newsletter and on social media pages. The study was closed for tabulation with 179 responses. To best represent the audience of interest, the results in this report were based on the 91 participants who indicated they currently own or work for an organization that cultivates and/or processes cannabis. Unless otherwise noted, this is the base for the data presented in this report.

NEARLY ONE OUT OF FIVE RESEARCH PARTICIPANTS HAS RECEIVED COMPLAINTS FROM NEIGHBORS OR SURROUNDING BUSINESSES ABOUT THE SMELLS EMITTING FROM A CANNABIS BUSINESS OPERATION.

WHY PRIORITIZE ODOR CONTROL?

AN IMPORTANT FINDING from the study is that odor control is local—nearly half (49%) of research participants who indicated they either use odor control technologies or plan to in the next 18 months said that local regulations require their organizations to have an odor abatement plan that includes implementing these systems. State mandates are also in play—36% indicated that state regulations require their organizations to implement these systems.

For any of your organization's cannabis cultivation/processing locations, do local regulations require your organization to have an odor abatement plan that requires implementation of odor control technology or systems?

49% **51%**

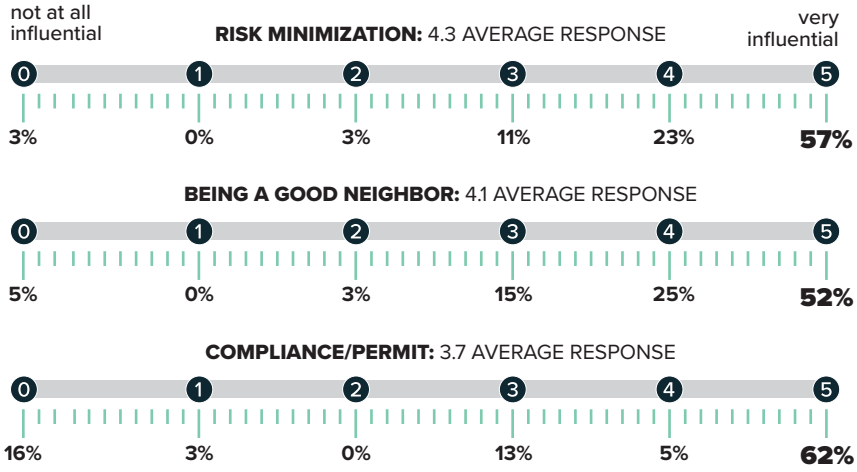
For any of your organization's cannabis cultivation/processing locations, was an odor abatement plan requiring implementation of odor control technology or systems required to obtain a permit from the state?

36% **63%** NO ANSWER **1%**

Base: Those whose organization cultivates and/or processes cannabis and uses odor control technology/systems or plans to in the next 18 months (76)

WHILE STATE AND LOCAL REGULATIONS may dictate whether many businesses decide to implement odor control technologies, other factors weighed heavily as well, including the desire to minimize risk and to be considerate neighbors. When considering how influential specific factors were in their decision to invest in odor control technology or systems, 57% of research participants said "Risk Minimization" is "very influential," while another 23% said it was "influential." More than half (52%) of study participants ranked "Being a Good Neighbor" "very influential," and another 25% said it was "influential."

Overall, how influential were each of these factors in your organization's decision to invest in odor control technology/systems?

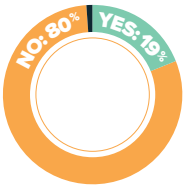


INDICATED AT LEAST ONE: **98%** | INDICATED NONE: **2%**

Base: Those whose organization cultivates and/or processes cannabis and utilizes odor control technology/systems (61). (Note: Participants rated factors on a 6-point scale from 5 "very influential" to 0 "not at all influential.")

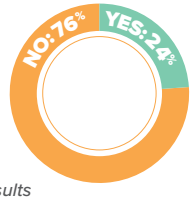
ANOTHER KEY FINDING of this study was that nearly one out of five respondents (19%) has received complaints from neighbors or surrounding businesses about the smells emitting from a cannabis business operation. Interestingly, 24% of those who have received complaints were required to provide proof of odor control technology or systems, indicating the value of having such systems when it comes to defending against complaints, as well as civil and criminal defense proceedings.

Has your organization ever received complaints (for any of its locations) from its neighbors and/or the community regarding the odor from its cannabis cultivation/processing operations?



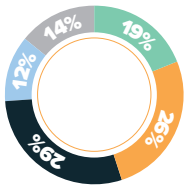
NO ANSWER: 1%

Was your organization required to provide reports/proof of odor technology/systems due to odor complaints?



Base: Those respondents who received complaints. Note: Results are based on fewer than 30 responses and considered statistically unstable.

REGARDLESS OF THEIR MOTIVATION for doing so, many cannabis businesses prioritize odor control in their operations, according to the data: 45% of participants said that odor control ranks "somewhat high" to "very high" in their hierarchy of operational priorities, while only 26% said it was "low" or "somewhat low."



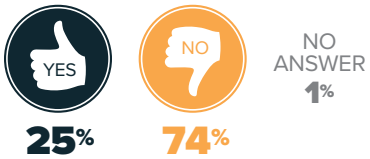
Where does odor control rank in your hierarchy of operational priorities?

- Very high
- Somewhat high
- Average
- Somewhat low
- Low

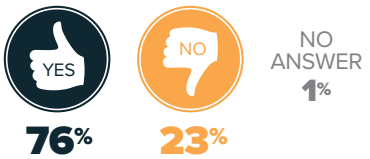
ODOR CONTROL PROCESSES & TECHNOLOGY CHOICES

DESPITE THE SIGNIFICANT NUMBER of research participants that said they consider odor control essential to their facility plans, a lack of understanding of basic odor control processes and technologies exists: 74% of research participants indicated they are not aaware of the differences between misting and vapor technologies, while another 23% are not aware of the differences between masking versus neutralizing an odor. (To help improve the level of understanding of odor control, this report also includes a glossary of key odor-control terms on p. S11.)

Are you aware of the differences between misting and vapor phase technologies?



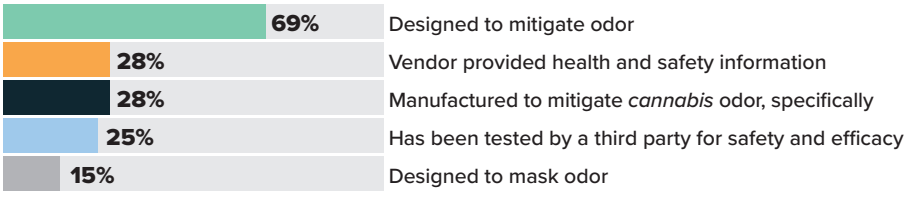
Are you aware of the differences between masking an odor versus neutralizing an odor?



WHATEVER THEIR LEVEL OF ODOR-CONTROL UNDERSTANDING, the majority of research participants are working to control odor in some fashion: 67% of research participants said they use at least one type of odor control technology. A wide range of products and systems are being used, but the most popular are carbon filtration and scrubbing systems. More than half (52%) of respondents utilize carbon filters/scrubbers in at least one cannabis cultivation or processing location.

Other odor control technologies in use at cannabis facilities include: Ozone generators (12%), odor masking agents (11%), high pressure fogging systems (7%), biofiltration (5%), and vapor phase systems (4%). Fewer than one in 10 participants (9%) indicated they used other forms of odor control technologies.

Which of the following is true regarding your organization's current odor control technology/systems?

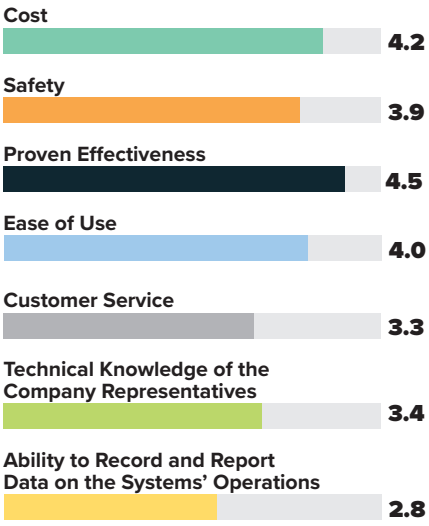


INDICATED AT LEAST ONE **90%** | NONE OF THESE: **8%** | NO ANSWER **2%**

Base: Those whose organization cultivates and/or processes cannabis and utilizes odor control technology/systems (61). Note: Total may exceed 100% as respondents could select multiple answers.

How important were each of these factors in your organization's selection of its current odor control technology/systems?

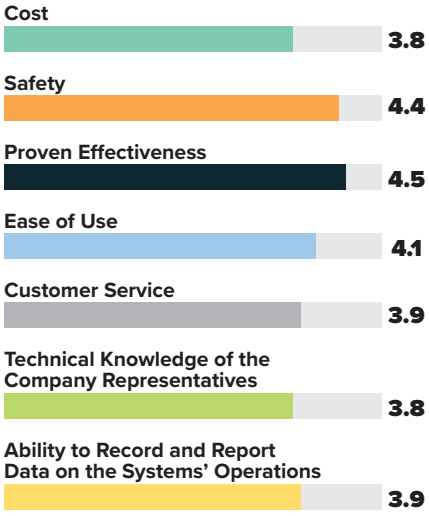
(Participants rated factors on a 6-point scale from 5 "very important" to 0 "not at all important." Averages are listed below.)



Base: Those whose organization cultivates and/or processes cannabis and utilizes odor control technology/systems (61)

How important will each of the following factors be in your organization's selection of its future odor control technology/systems?

(Participants rated factors on a 6-point scale from 5 "very important" to 0 "not at all important." Averages are listed below.)



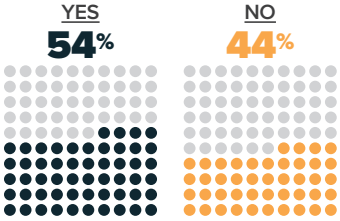
Base: Those whose organization cultivates and/or processes cannabis and does not use odor control technology/systems but plans to in the next 18 months (15)*

**Results are based on fewer than 30 responses and considered statistically unstable.*

CASCADECREATIVES; ARXICHTU4KI | ADOBE STOCK

CANNABIS CULTIVATORS ARE NOT WAITING ON NEIGHBORS TO COMPLAIN about their facilities before utilizing odor control technologies or systems: 61% of respondents who currently utilize odor control technology or systems or plan to in the next 18 months said that odor control was considered and implemented in the initial design of their facilities.

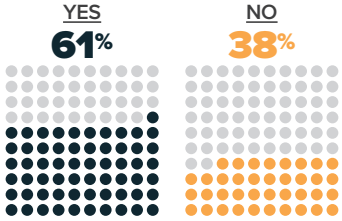
Are any of your organization's odor control technology/ systems incorporated within its HVAC systems?



NO ANSWER **2%**

Base: Those whose organization cultivates and/or processes cannabis and utilizes odor control technology/systems (61)

Was odor control considered and implemented in the initial design of your operation's facility(s)?



NO ANSWER **1%**

Base: Those whose organization cultivates and/or processes cannabis and uses odor control technology/systems or plans to in the next 18 months (76)

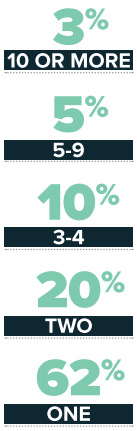
AS THE NORTH AMERICAN CANNABIS INDUSTRY continues to expand at a rapid pace, odor issues will continue to confront cultivators in nearly all geographic locations. And as education about odor control and related technologies advance, time will tell how this knowledge will impact cannabis cultivation businesses and the regulatory landscape.

ABOUT THE RESEARCH & PARTICIPANTS

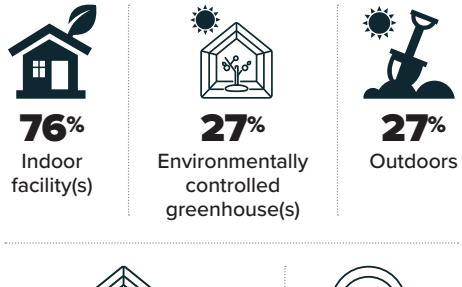
PARTICIPANTS IN THE ODOR CONTROL STUDY grow and process cannabis in a variety of environments. Nearly half of research participants (49%) said they cultivate or process cannabis in a rural area; 40% said their operations are in an industrial area; 30% indicated their operations are in an urban setting; and 22% said they are in the suburbs. (Total exceeds 100% because multiple locations could be selected.)

Beyond location diversity, cannabis business owners are operating in a wide range of facilities, as well: 76% of respondents indicated they grow or process cannabis in indoor facilities, 27% indicated they grow in environmentally controlled greenhouses, 11% indicated they grow in non-environmentally controlled greenhouses, 7% indicated they grow in hoop houses, and 27% indicated they grow outdoors.

How many cannabis cultivation and/or processing locations does your organization have?



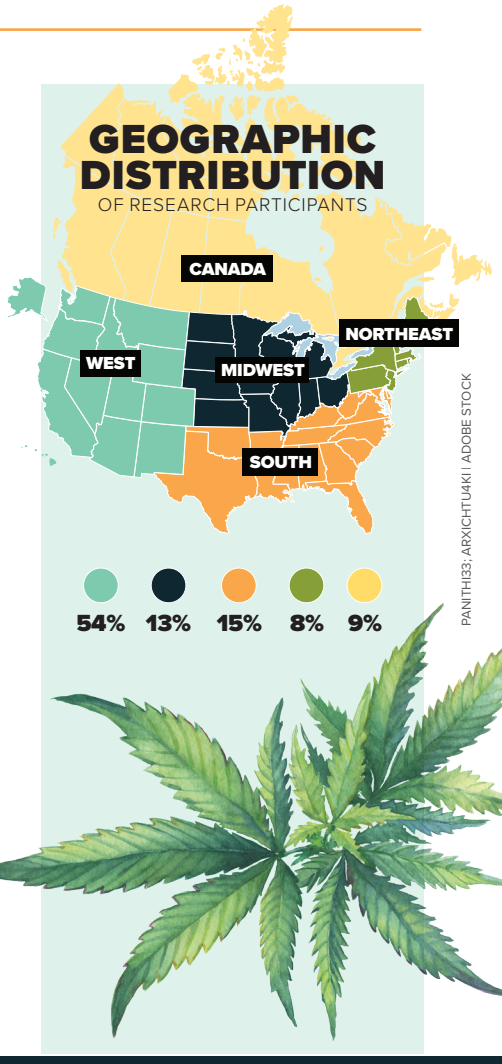
Where does your organization cultivate its cannabis?

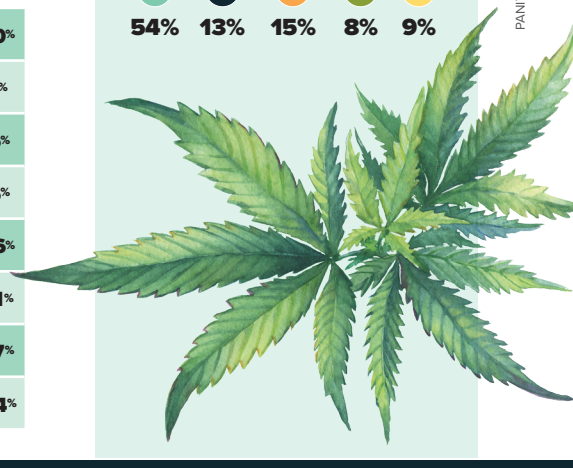


Note: Total may exceed 100% as participants could select multiple answers.

How many square feet is your organization's cannabis crop production (total plant canopy) including all locations?

500,000 or more	10%
250,000 - 499,999	1%
100,000 - 249,999	6%
50,000 - 99,999	6%
25,000 - 49,999	16%
10,000 - 24,999	11%
5,000 - 9,999	17%
Less than 5,000	34%





CASE DISMISSED

Learn from these settled RICO cases how proper equipment and defense can save you from judgment.

The site Alternative Holistic Healing purchased and on which it built its recreational cultivation warehouse in 2016; view is facing the Reillys' property.

Cannabis odor control is serious business, especially when neighbors take cultivators to court over it. Some have done just that in Colorado, California and Oregon, suing cannabis growers under the Racketeer Influenced and Corrupt Organizations Act.

Commonly referred to as RICO, this act is known for Mafia-related prosecutions by allowing ordinary citizens to sue criminals who cause them financial harm and collect three times the amount of damages jurors find, in addition to attorney's fees. Due to marijuana's Schedule I drug classification, marijuana cultivation and sales remain illegal under federal law, leaving the door open to RICO prosecutions.

While judges in these prominent RICO suits ruled against the plaintiffs, the cases remain notable as they highlight risks involving cannabis odor, and in the Colorado suit—the most publicized of the cases—how odor control contributed significantly to the defense.

COLORADO

Michael and Phillis Reilly turned to federal court in 2015 when a cannabis grow (Alternative Holistic Healing) moved next door to where the couple kept their horses. A panel of the U.S. Court of Appeals for the 10th Circuit found that growing cannabis for sale is a violation of federal law, and thus "is by definition racketeering activity," which could decrease the Reilly's property value. The panel also found it plausible that alleged odor from the facility could make the couple's property less valuable. The appeals court sent the case back to district court.

Matthew Buck, the defense attorney representing the land owner, Parker Walton, argued during the trial that the grow did not cause any odor due to its odor-control system, which did not vent outdoors. He added that the Reillys' property value had actually increased, not decreased, as claimed. On Oct. 31, 2018, a jury in Denver decided that the grow facility did not hurt the Reilly's property value, ending the closely watched case in favor of Walton.

CALIFORNIA

In August 2018, residents in a Sonoma County, Calif., neighborhood filed a lawsuit in San Francisco federal court accusing Carlos Zambrano and his company, Green Earth Coffee, of violating racketeering laws by running his cannabis cultivation operation without local permits or a state license. Zambrano had applied for a cultivation permit, which was not issued and was pending an appeal at the time of the lawsuit. The neighbors alleged that the grow's noise and odor were major disruptions to the area.

Zambrano filed a motion to dismiss the case in October 2018. In it, he said that the nine neighbors suing him had not stated a valid claim under RICO, as they had not suffered financially. On Dec. 27, 2018, U.S. District Judge Jon Tigar ruled in Zambrano's favor—that the neighbors could not sue Zambrano and his operation under RICO because bad odors and noise are nuisances that do not cause the kind of measurable financial losses required to pursue a case. The ruling came several weeks after Green Earth Coffee ceased its operations as part of an agreement with Sonoma County's permitting department, which said the business did not comply with all its rules.

OREGON

Plaintiffs in *Ainsworth v. Owenby* filed a RICO lawsuit in December 2017 against a cannabis cultivation operation with a greenhouse on a neighboring property. The landowners argued that noise from the facility and the "persistent stench of marijuana," among other complaints, had disrupted their lives and made their properties "worth materially less than they otherwise would be" and "harder to sell at any price." The district court summarized the plaintiffs' complaints into three injuries: "(1) diminished use and enjoyment of their properties; (2) reduction in the fair market value of their lands; and (3) expenditures on additional security measures."

Ultimately, the court found that—similar to the Colorado case—these three injuries were not actionable under RICO, and the case was dismissed in August 2018.

PHOTO COURTESY MATTHEW BUCK

SANTA BARBARA RULES

The California county is working with growers and residents to refine odor control regulations.

On Jan. 29, Santa Barbara County supervisors organized what turned out to be a contentious meeting on cannabis regulations. About a year prior, the county passed its local cannabis ordinance, and it was time to check in and evaluate the progress thus far; the public, as noted in a December *New York Times* article on the county's cannabis cultivation odor issues, was not overwhelmingly supportive. Audience members at the meeting wore clothespins attached to lapels and collars, signifying "the need to pinch their noses," as a reporter from the local ABC news affiliate, KEYT-TV, explained.

"We've had enough," Carpinteria resident Maureen Foley Claffey said at the meeting, according to a report by the local news outlet Coastal View. "Pot stinks, and we're mad as hell."

As municipalities and county governments around the U.S. are finding out, regulating a new industry forces a steep learning curve.

JEREMY FRANCIS | ADOBE STOCK

Das Williams, supervisor for the First District of Santa Barbara County, has been at the forefront of cannabis regulation development so that the county would have something on the books and a legal foundation. In addition to organizing public hearings in Santa Maria, Williams even hosted a community meeting at his home in Carpinteria, the coastal city of 13,600 residents all neatly packed in among 14 square blocks. In those meetings, he learned that odor is a top concern for community members.

"Getting odor control right is just crucial for any community where there is close proximity between growers and a large number of residents," Williams says.

Santa Barbara County started by building odor control technology requirements into the county's zoning codes. "We put a term that is used in laws often of 'best available technology' that preserves our ability as technology improves to ask for better odor control—and demand better odor control," Williams says.

In addition to licensing requirements, counties can control land use requirements as part of their odor control tools, meaning they can determine what type of structure or business can occupy which zones.

"If you mandate odor control, you are de facto banning outdoor cultivation in a zone where you mandate odor control," Williams says. "And so, we have done that in Carpinteria. We have both de facto banned outdoor cultivation … by mandating odor control, and we've done it de jure by requiring a buffer of 1,500 square feet between residences and outdoor operations. In Carpinteria, that means there's only two or three parcels that would qualify. … Essentially, our permitting tends to favor greenhouses."

Carpinteria's population density is just over 1,400 people per square mile, according to 2010 U.S. Census figures, more than five times California's average of 251 people per square mile. Williams says his county's plan worked for his densely populated corner of the California cannabis market. In communities with different population densities, however, Williams counsels a more personalized approach.

> "WHEN WAS THE LAST TIME YOU LOOKED AT YOUR OWN ODOR CONTROL SYSTEM? IS EVERYTHING OPERATING NORMALLY? ARE THERE ANY SERVICE NEEDS?"
>
> **– DENNIS BOZANICH,**
> DEPUTY COUNTY EXECUTIVE OFFICER,
> SANTA BARBARA COUNTY

COMPLAINTS AND SOLUTIONS

The onus is on greenhouse operations to apply the "best available technology" to keep their plants' odor at a reasonable standard. Dennis Bozanich, deputy county executive officer with Santa Barbara County, says that the legislation has given his agency a proper baseline for enforcing local code. It's a work in progress, as most cannabis laws are, but it's given him and his team a path forward to work with both businesses and residents.

"It does tend to be complaint-driven, but it's also proactive as well," Bozanich says. "As part of the compliance team, we have staff regularly visiting licensed operators, identifying practices or business operations that are outside of the requirements established in our local regulations. We then cite and/or come up with an improvement plan for them to come back into compliance."

Further, the ability to enforce an ordinance gives Bozanich a chance to suss out illicit grow operations in the county. When responding to a complaint, the county team will first assess whether it can be traced to a nearby licensed grow facility; other times, a complaint may lead them to an unlicensed business that needs to be shut down. The county spends $1.7 million per year on an enforcement team that's eradicated about 1 million plants from July 2018 to March 2019, Bozanich says.

Often enough, though, he says the county is building cannabis odor into a more proactive conversation with licensed growers.

"At times," Bozanich says, "we will go to an operator as part of our compliance check to say, 'Look, we're continuing to get a large number of other complaints. When was the last time you looked at your own odor control system? Is everything operating normally? Are there any service needs? Were there any purposes for which you had the system shut down for any period of time, for routine maintenance, for example? What was the duration of that?' And then we're working with them to make sure they are operating that odor control system as consistently and as finely tuned as possible."

When it comes to selecting an odor control technology, Williams says "the real key here is: What's the maximal effectiveness of a system that you can do with the lowest energy use?

"That's a balance. If the energy use is so high, then the operator will be tempted to turn it off sometimes. … That of course would defeat the purpose. So, getting this right from a technical perspective and from a standards and community expectations perspective is really important," he says.

And it is, in the end, a conversation. As the licensed cannabis industry comes into its own, Santa Barbara is joining an increasing number of local governments and business communities trying to wrangle an understanding of how cannabis will interface with the rest of society.

Williams and his fellow supervisors talked to professionals in solid waste circles and in the odor control vendor community. Then, of course, the growers and Santa Barbara residents weighed in on how to enforce this balancing act.

"We're still learning," Williams says. "I don't want to say that we've gotten it all down. We established in the ordinance a standard, and we will, by experience, learn how to do it better."

An odor panel remains the best way for cannabis businesses to measure odor and defend against complaints.

THE NOSE KNOWS

Odor panelists' specialized equipment dilutes environmental samples with fresh air to ensure accurate results.

To measure odor you must measure the "psychological response of humans to the olfactory stimuli," Dr. Ardevan Bakhtari, president of Scentroid, an odor detection technology and solutions company based in Whitchurch-Stouffville, Ontario (Canada), tells *Cannabis Business Times*.

That subjectivity is what makes handling odor situations difficult, as neighbors might experience cannabis odors differently than cannabis business owners. Responses to odor also may differ among neighbors on the same street or team members in the same company. How can a cannabis business owner resolve a problem they cannot objectively measure? How can courts rule whether a civil or criminal odor-related lawsuit has merit if arguments boil down to "he said, she said"?

One solution is an international standard that has been around for nearly 60 years: an odor panel.

WHAT IS AN ODOR PANEL?

Odor panels are groups of specially trained odor experts, called "odor panelists" or "odor assessors," who take and measure air samples to determine odor levels.

"A panelist is a 'trained nose' that we've measured the sensitivity [of] using a known compound," Bakhtari explains. Panelists are selected through a smell test of n-Butanol, an alcohol that is detectable by 90 percent of the human population when present in concentrations ranging from 20 ppb (parts per billion) to 80 ppb. To put together an accurate panel, "we're not just looking for a super sense of smell," says Scentroid's president. "We're looking for people who fall within that norm of human detection."

Humans remain part of the odor detection process because, simply put, no technology can detect and identify smells like the human nose. Indeed, the human nose can distinguish between one trillion odors, according to research published in 2014, orders of magnitude more than even the most expensive odor detection technology can capture, Bakhtari says. In addition to differentiating between odors, the human nose "can detect pollutants at part per trillion levels," he adds.

HOW CAN AN ODOR PANEL HELP A CANNABIS BUSINESS?

Odor panelists can assist cannabis businesses by conducting odor studies that identify which processes emit the most odors, where those odors are escaping the facility, as well as help with identifying and selecting technology solutions, Bakhtari says.

An odor panelist can also act as an expert witness in court proceedings. In fact, an odor panel is the only evidence accepted by courts in odor-related lawsuits, Bakhtari says. (See p. S7 for more on cannabis odor lawsuits.)

"There is some negativity toward cannabis production," Bakhtari says. "And it kind of gets ugly, because [opponents] say the odor is very strong, and then an inspector can go and there is no odor. Because you cannot measure it easily, it becomes a 'he said, she said.'"

Scentroid recently was called to testify at a hearing when a resident sued a Canadian licensed cannabis producer (LP) over odors emanating from the facility. Using an odor study and site visit, the odor panelist was able to prove that "the [LP] was doing everything properly and there wasn't that much odor," Bakhtari says.

Because odor is such a powerful sense, Bakhtari advises that cannabis business operators handle any odor complaints quickly and fully. "One of the issues with odor is that because it's a psychological thing, if there is an actual odor and it lingers, people ... will develop a hyper-sensitivity to this odor. So as soon as you get the complaint, try to solve it right away."

PHOTO COURTESY OF SCENTROID

ODOR CONTROL
GLOSSARY OF KEY TERMS

BIOFILTRATION SYSTEM:
A system in which a moist living microbial substrate, such as a deep bed of inoculated mulch and bark at a waste water treatment facility, breaks down odors to chemical components before microbes feed on those compounds.

CARBON FILTRATION SYSTEM:
A system in which an activated carbon substrate removes odors by collecting odor molecules onto the carbon (adsorption). These systems typically are found at exhaust points.

DEODORIZER:
General term for a product/agent that covers up or removes an unpleasant odor.

FOGGING SYSTEM:
A system in which a liquid has been converted to a super fine misted particle (fog). Fog droplets trap dust and other particles. Odor neutralizing agents can be added to the air to mix with the droplets. Fog is visible and tends to travel along in local airstreams with minimal fallout on the ground.

MISTING SYSTEM:
A system in which a liquid has been converted to a droplet. Visible droplets attract particles in the air (similar to a fogging system), and tend to fall out of the airstream close to their source.

ODOR MASKING AGENT:
A compound that covers up an unpleasant smell without changing the chemical structure of the malodor. An odor masking agent acts like a perfume.

ODOR NEUTRALIZER:
A compound that physically alters the chemical state of a malodor upon contact. Both malodors and odor neutralizers are typically not detectable after the chemical reaction when properly dosed.

OZONE GENERATOR SYSTEM:
A system that produces ozone (O_3), which destroys some odorous molecules upon contact. Ozone can be lethal to humans and destructive to rubber at certain doses in an unventilated area.

VAPOR PHASE SYSTEM:
A system in which liquid has been converted to its gas state. Odor neutralizers in gas form are injected, and because of the molecules' lighter weight and size, travel with the vapor through the air. Vapor (invisible) tends to travel in local airstreams without falling to the ground.

VOLATILE ORGANIC COMPOUND (VOC):
Material derived from a natural source that a constituent part "boils" off at room temperature; can be naturally occurring, such as a plant-emitted scent, or manmade, like a combustion engine's exhaust fumes. Not all VOCs are harmful.

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