

Micro Mass Spec in the Cannabis Field: A Q&A With 908 Devices

Article

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Recreational cannabis has been legal in California for over five years. But that doesn't mean everyone growing cannabis in the state is doing so legally. Indeed, despite the efforts of legal cannabis campaigners and companies, **it's thought that most cannabis in California** is bought illegally from unlicensed growers.

Many such illicit cultivators hide their operations within California's vast woodlands, far away from prying eyes. Yet evidence of these forest farms has been spotted more and more, with the help of newer, more portable mass spectrometers like the MX908.

"The MX908 always attracts people because they can't believe it's actually a mass spec," Joe Gallo, a product marketing manager at **908 Devices** – a manufacturer of mass spectrometers – told Analytical Cannabis. "It's only about 4.3 kilograms – basically about the size of a laptop."

Small or not, the mass spec was certainly spotted by the US Forest Service, which in recent years has been leading investigations and raids on many of the illegal cannabis operations hidden in California's forests.

"The US Forest Service within the Department of Agriculture, they became interested in the MX 908 for a lot of the reasons – the portability, the accuracy of the device, the speed-to-result," Gallo adds.

"Previously, they [the Department of Agriculture] had been going to the [illegal cannabis] sites to remediate them, to clean them up," he told Analytical Cannabis. "And they were taking samples off of things like crop sprayers or containers, taking samples out of the site, potentially hiking a mile or two out and then sending them to a laboratory. And depending on that laboratory, it might take a few weeks, two months to get results back."

"And meanwhile pesticides potentially sit in there contaminating the environment, wildlife, potentially water sources, while they wait on results back from the lab."

"One of the things that we're really interested in is finding a way to speed that process up. And that's when they came to us, and we entered into this sort of partnership to develop some of the pesticide targets and be able to get them those same answers, but on site in seconds versus weeks."



The MX908 in action. Image credit: 908 Devices.

According to Gallo, the MX908 has a library of just under 200 different target chemicals, many of which are classed as warfare agents.

"It was initially launched about five years ago as a chemical warfare agent detector," he said. "And since then, we've added different drugs and narcotics explosives and toxic industrial chemicals, the most recent one being the pesticides. So we'd like to say that that MX908 is a threat hunter."

And the pesticides leaking out of these canopy-covered cannabis sites really are a threat. Many of the

chemicals have been found in the carcasses of wild animals, species like the fisher, a member of the weasel family native to North America.

"There were a few cases early on," Dr Greta Wengert, executive director of the Integral Ecology Research Center (IERC), a non-profit group dedicated to the research and conservation of California's wildlife and ecosystems, **previously told Analytical Cannabis**.

"We discovered that fishers had died of anticoagulant rodenticide poisoning. It kills by basically bleeding animals to death. And this really surprised us because this is a species that lives in remote forest, far away from humans, and far away from agricultural areas where these rat poisons are generally used."

"And once we started discussing this with law enforcement, it became clear that there was an issue of illegal cannabis cultivation in our national forests [...] and so that opened our eyes to this problem, and this is what we see as a major conservation issue for a lot of forest dwelling species."

And it's not just wildlife that's at risk from these rodenticides. When the chemicals leak into the forest streams, they can be carried down river to rural communities that rely on the water for drinking and (legal) agriculture. So, it's vital teams like Wengert's and the US Forest Service help shut down these illegal cannabis sites, if they can reach them.

"I had the opportunity to go out to some different sites with them about a year and a half ago," said Gallo. "It was eye opening – the scale of the problem and in some of these sites, and I used to be in the army. I'm used to hiking around, but the sights are really in some austere, tough-to-get-to locations."

"So if they're able to reduce the amount of time that they're hiking in and out or able to clean up quicker, it really does make a big difference. So it's great to be a part of that and to be able to help them."

*This article was updated on July 7, 2023, to include an image of the MX908.



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