Waiting to Inhale

Well, Oregon, we've come a long way. As of July 1, recreational marijuana use is legal for adults. Prohibition ends at last. Reefer madness, at least for now, has found its antidote, and it turns out it was legal, regulated marijuana all along.

We hope that this will be the start of a greener, brighter chapter in pot's problematic history — an era in which cannabis research proliferates and the number of people in prison for marijuana offenses drops off; when all the benefits of marijuana are explored without fear or resistance.

In this special issue, we give you the lowdown on legalization ("Legal Weed 101"), designer marijuana strains and customizing your high ("Smoke the Rainbow"), the effects of marijuana on the developing brain ("No Brainer") and the growing issue of pesticide use on marijuana, especially in concentrated forms like butane hash oil ("Dirty Medicine").

But, buyer beware. On the eve of the repeal of prohibition, moonshiners still abound. And if the history of commodification tells us anything, when a substance goes from illicit to legal, snake oil salesmen will creep out of every capitalist corner. In a gold rush, or rather a green rush, it's every man for himself.

So inhale, exhale, enjoy, be safe and educate yourself. Marijuana is a mighty substance, but we have a lot left to learn. — EW *Staff*

DIRTY MEDICINE

Butane hash oil, illegal pesticides, unregulated labs and a looming public health threat BY ALEX V. CIPOLLE

Five years ago a friend handed Will Thysell a piece of "shatter." The glossy golden marijuana extract immediately intrigued him.

"I just had never seen anything like it," Thysell says. "The look, the taste, the feel, was completely new." He tried the potent extract and knew it could help a loved one in chronic pain. His godfather had scarring on his heart and lungs caused by severe shingles — a condition he described as a million burning-hot needles poking him.

"I gave him a dab of it and he just let out this relaxed breath, and he said, 'It's like a warm blanket evaporating my shingle pain," remembers Thysell, who owns Next Level Wellness, a medical marijuana dispensary in South Eugene. "At that point I immediately knew I was going to take it upon myself to do two things: make sure he had enough of it as he needed and that it was going to be as clean as a product that it possibly could be."

In cannabis circles, stories like Thysell's are not uncommon: marijuana as a medicine that alleviates ailments like no drug traditionally found in a prescription bottle ever could. Now that medicine comes in more forms than ever. Shatter is a form of butane hash oil (BHO), a cannabis extract or concentrate, which has skyrocketed in popularity in recent years.

The tacky substance has many names for its varying shapes and viscosities — shatter, wax, dabs, resin, budder, honeycomb, honey oil, crumble or even gummy wax (think cannabis gummy bears).

BHO is arguably the strongest medicine that falls beneath cannabis' growing umbrella of byproducts, with a range of THC (tetrahydrocannabinol, the psychoactive chemical in pot) averaging 65 to 90 percent. The strongest marijuana flowers typically have THC potency below 20 percent.

The question of the hour, however, isn't whether BHO is effective as medicine, but whether it's clean and safe to use. The answer seems to be alarmingly no — at least, not yet.

There is a big, dirty elephant stomping through marijuana crops that most people in the industry, along with the Oregon state agencies that oversee it, aren't informing the public about: pesticides.

Consumers are unknowingly ingesting and inhaling concentrated pesticides at unprecedented levels when using BHO, more so than when consuming marijuana flowers. Found on the shelves of your local dispensary and made illegally in homes across the country, BHO has tested positive for toxic levels of pesticides, many of whose chemical compounds have been linked to cancer.

In addition, any pesticide use on cannabis crops is technically illegal, as it has not been approved by the Environmental Protection Agency (EPA), the federal body charged with regulating pesticides.

Meanwhile there is no regulation, accreditation or tracking of cannabis testing labs by the state.

Welcome to the Wild West of weed.

THE WHITE PAPERS

"Pesticide use on cannabis is an emerging public health threat."

That's the first line in the introduction to "Pesticide Use On Cannabis," a study released in June 2015 by Eugene chemist Rodger Voelker and Portland biologist Mowgli Holmes. The study is part of a series of white paper reports on cannabis available to the public at cannabissafetyinstitute.org.

The white paper continues, "The data in this paper indicate that pesticides can now be found on close to half of the cannabis sold in Oregon dispensaries. The potential dangers of this situation are magnified by the increase in popularity of cannabis extracts. These are made by processes that appear to concentrate pesticides, leading to extremely high levels in the final product."

Nursing a cup of coffee at his desk in OG Analytical — a West Eugene cannabis-testing lab — Voelker is almost twitchy with concern over the report's findings. As the lab's scientific director, Voelker has a Ph.D. in molecular biology. He served as a chemist and a director for a pesticide residue analytical laboratory in the Oregon Department of Agriculture for several years before diving into the new frontier of cannabis analysis.

The report, Voelker says, "includes the initial data we gathered over a six-month period, demonstrating that there is a real concern there, yes." Voelker and Holmes tested for more than 65 compounds in 389 samples of Oregon marijuana flowers and 154 samples of concentrates. It should be noted, however, that not all concentrates are BHO (e.g., tinctures).

Voelker shared the findings with *The Oregonian*, published in a June 11 special "Watchdog" report. "A Tainted High" is an exhaustive but general investigation about how "lax state rules, inconsistent lab practices and inaccurate test results put pesticide-laced pot on dispensary shelves."

But more so than concerns about pesticides on pot flowers, the white paper shows that BHO is consistently showing the highest levels of pesticide contamination, from insecticides such as befenthrin and carbaryl, the fungicide myclobutanil (commonly found in Eagle 20) and piperonyl butoxide (PBO), an organic compound used in pesticides to enhance toxicity of active ingredients.

The report says that pesticides "appear to be 10x higher in concentrates versus flowers." The EPA has classified many of these compounds as possible or likely human carcinogens.

'WE NOT ONLY DON'T HAVE TO REPORT OUR FINDINGS, THERE IS IN FACT NOWHERE TO REPORT THEM, AND I HAVEN'T FOUND ANYONE IN THE STATE SYSTEM THAT SEEMS TO CARE,' SAYS RODGER VOELKER, LAB DIRECTOR FOR OG ANALYTICAL

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