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Kevin Dalia

Golden Gate University School of Law

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GREEN GARBAGE: A STATE COMPARISON OF MARIJUANA PACKAGING AND WASTE MANAGEMENT

KEVIN DALIA¹

I. INTRODUCTION

The United States is experiencing a green rush.² States have been legalizing cannabis³ across the nation, and it has created a multi-billion-dollar industry.⁴ Ten states have created a regulatory structure for commercial⁵ sale and use of cannabis and thirty-four states have legalized medical marijuana.⁶ A plant that was once exchanged through back-alley deals is now often sold through big name corporations. With the age of racially motivated laws aimed to criminalize “Mary Jane” coming to an end, corporate America is taking the reins of a new, regulated industry to turn marijuana from herbal green into financial “green.”

¹ J.D. Graduate, Golden Gate University, School of Law, 2020. The author became interested in cannabis law after learning about the medical benefits of cannabis through cancer patients as well as the prejudicial history behind cannabis prohibition. The author hopes that this article will help reform current cannabis regulations and inform future commercial states of best practices. The author would like to thank the amazing Golden Gate University School of Law Environmental Law Journal editors for their hard work and contributions. The author could not have finished without such diligent editors.

² A term of art used to represent the flood of lawful cannabis business development.

³ Cannabis is a tall plant with a stiff upright stem, divided serrated leaves, and glandular hairs. It is used to produce hemp fiber and marijuana.

⁴ The Associated Press, Gillian Flaccus, *Legal Marijuana Toasts Banner Year* (Dec. 27, 2018) <https://apnews.com/0bd3cdbae26c4f99be359d6fe32f0d49>.

⁵ Some states also refer to it as “recreational” sale of marijuana, but “commercial” is a more appropriate term because the customers include recreational and/or medical users.

⁶ Marijuana, whether smoked or consumed, is a psychoactive drug that comes from the cannabis plant. It should not be confused with hemp, a fibrous material that also comes from cannabis, as distinguished in the 2018 Farm Bill; Westlaw at Practical Law Practice Note Overview 7-523-7150.

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Although many states may have legalized marijuana, the substance remains illegal on a federal level under the Controlled Substances Act.⁷ Because of this, individual states have implemented strict regulations that follow federal guidelines and avoid federal enforcement. This tension between federal laws and individual state interests have resulted in excessive regulations that do more harm than good to the environment. While many laws in states where marijuana is legal are similar to each other, some have unique regulations. Individual states' divergent waste management regulations, packaging, and labeling requirements for commercial marijuana are particularly damaging.

This article provides a brief historiography of legislative prejudice against marijuana to provide greater context as to why marijuana laws are strict, excessive, and improperly motivated, leading to environmental concerns that could be mitigated. The article compares waste management, packaging, and labeling regulations in the ten states that have legalized commercial marijuana.⁸ This comparison allows us to explore two sides of the same regulatory coin, showing examples of excessive and environmentally harmful regulations on one side, while highlighting regulations that should serve as exemplars for future legislation on the other. Also included are some of the industry practices and community feedback to shed light on the regulations in practice. Hopefully this article can contribute to moving the needle towards a more equitable and sustainable regulatory system of the marijuana industry.

II. MARIJUANA HISTORY IN THE UNITED STATES

A. FROM THE BEGINNING TO ANSLINGER'S LEGACY

Government regulation of marijuana⁹ stems back almost 100 years; today we can easily trace its roots through centuries of systemic racism. Starting in the early 1900s, law enforcement and politicians began to associate marijuana with Mexican people. The same stigma attached to black musicians notorious for using weed dominating the rising jazz and blues industry.¹⁰ Fueled in part by these racist stereotypes, politicians started outlawing marijuana in every state.¹¹ Law enforcement argued that weed caused crime and violence without medical evidence.¹² They

⁷ 21 U.S.C. §812(b)(1).

⁸ This article has been limited to commercial states because they tend to have the most extensive regulations.

⁹ Weed is a colloquial synonym for marijuana.

¹⁰ Martin Booth, *Cannabis: A History* 138-141 (1st Ed. 2004).

¹¹ *Id.* at 132-133.

¹² *Id.*

did not criminalize the substance because scientific evidence called for it, they outlawed it due to preconceived notions of minorities.

Then in 1930, the Federal Bureau of Narcotics was founded to help combat the problems of opiate addiction.¹³ Harry J. Anslinger was placed in charge of the department, and he justified its existence by further villainizing marijuana.¹⁴ For twenty years in this role he continued to demonize communities of color,¹⁵ created a false narrative around the effects of marijuana to influence legislation, and prevented research institutions from conducting studies related to marijuana.¹⁶

For example, Anslinger wrote and published “Marijuana: Assassin of Youth” in the American Journal a few weeks before the Marihuana¹⁷ Tax Act¹⁸ got approved.¹⁹ The article focused on fictional stories of youth committing suicide or incoherent violence because they were under the influence of marijuana.²⁰ Anslinger even made a public statement that marijuana was “an addictive drug which produces in its users insanity, criminality, and death.”²¹

During the 1950s, Anslinger established the stigma that marijuana is a gateway drug to heroin.²² At the UN Commission on Narcotic Drugs in 1954, Anslinger secured approval of the Single Convention,²³ which bars member nations from legalizing marijuana, after threatening that the United States would veto any other decisions if the Single Convention wasn’t approved.²⁴

¹³ *Id.* at 146.

¹⁴ *Id.* at 149.

¹⁵ As stated by Harry Anslinger, “There are 100,000 total marijuana smokers in the US, and most are Negroes, Hispanics, Filipinos, and entertainers. Their Satanic music, jazz, and swing result from marijuana use. This marijuana causes white women to seek sexual relations with Negroes, entertainers, and any others.” David McDonald, *The Racist Roots of Marijuana Prohibition*, (Tuesday, April 11, 2017), <https://fee.org/articles/the-racist-roots-of-marijuana-prohibition/>.

¹⁶ Booth at 154-155.

¹⁷ Marijuana, as pronounced in Spanish, was originally spelled “marihuana” in English and some states, such as Michigan, still use the antiquated spelling.

¹⁸ Pub.L. 75-238, 50 Stat. 551 (1937).

¹⁹ Booth at 157.

²⁰ *Id.*

²¹ *Id.* at 158.

²² *Id.* at 177.

²³ The Single Convention on Narcotic Drugs of 1961 is an international treaty to prohibit production and supply of specific drugs except under license for specific purposes. It served as the foundation for the Comprehensive Drug Abuse Prevention and Control Act of 1970 which places cannabis on Schedule I.

²⁴ *Id.* at 205.

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B. FROM NIXON'S WAR ON DRUGS TO REAGAN'S REINSTATEMENT OF MANDATORY SENTENCES

In 1970, the Comprehensive Drug Abuse Prevention and Control Act put drugs into five different schedules based on potential for abuse and medical applications.²⁵ It also removed mandatory minimum sentences and reduced marijuana possession down to a misdemeanor.²⁶ Established by President Richard Nixon, the Shafer Commissions made findings consistent with previous presidential commissions, that there were no "atrocities" of marijuana to uncover.²⁷

Ignoring the Shafer Commission's recommendations, Nixon declared the War on Drugs.²⁸ Years later, Nixon's domestic policy chief, John Ehrlichman, brought forward the true reasoning behind the War on Drugs:

We knew we couldn't make it illegal to be either against the war or black, but by getting the public to associate the hippies with marijuana and blacks with heroin. And then criminalizing both heavily, we could disrupt those communities. We could arrest their leaders, raid their homes, break up their meetings, and vilify them night after night on the evening news. Did we know we were lying about the drugs? Of course we did.²⁹

During President Ronald Reagan's tenure, organizations such as Families in Action, the Parents' Resource Institute for Drug Education, and the National Federation of Parents for Drug-Free Youth managed to put a stop to any idea of legalization.³⁰ Following parental outcries taking this hard line against drug use, President Ronald Reagan reinstated mandatory minimum sentences, thus causing a dramatic increase in the prison population.³¹

It is against this background that the state and federal governments criminalized marijuana. At its worst, this background was racist; at the very least, these policies were uninformed. This began to change as more individuals, through word of mouth, recognized medicinal uses for marijuana involving epilepsy, cancer, chronic pain, AIDS, and many

²⁵ *Id.* at 246.

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ Tom LoBianco, *Report: Nixon's War on Drugs Targeted Blacks, Hippies*, (Updated 3:14 PM ET, Thu March 24, 2016), <http://www.cnn.com/2016/03/23/politics/john-ehrllichman-richard-nixon-drug-war-blacks-hippie/>.

³⁰ Booth at 253.

³¹ *Id.* at 254.

other conditions.³² As marijuana stigmas began to be dispelled, individuals put forth voter initiatives to legalize marijuana in one way or another.

For example, a voter's initiative passed California's Proposition 64 in 2016.³³ In addition, Colorado's Amendment 64 passed in 2012,³⁴ despite the adamant disapproval of John Hickenlooper, Colorado's governor at the time.³⁵ The legislation below demonstrates the progress that has been made from Colorado's early commercial marijuana legalization and to more recently when California legalized commercial marijuana.

III. STATE REGULATIONS

Over the span of nearly a century, the prejudicial and political treatment of marijuana has culminated into devastating stigmas which, in turn, has produced state regulations that are wasteful, unnecessary, and harmful to the environment. The prohibition on marijuana has sent the drug into the illicit market³⁶ where it was associated with street-corner dealers and sold alongside drugs that can be lethal, such as cocaine and heroin. Marijuana was used to fund crime but is now being taken out of the hands of drug lords and placed into a regulatory framework to benefit law abiding society.

Roughly a century of prohibition has left the marijuana industry coping with illicit market stigmas made worse by limited research.³⁷ Many people are afraid of detrimental, unforeseen consequences to public health.³⁸ Because the substance is still illegal on a federal level due to the Controlled Substances Act, states are afraid of federal enforcement.

³² National Institute on Drug Abuse, *Marijuana as Medicine*, (Revised July 2019), <https://www.drugabuse.gov/publications/drugfacts/marijuana-medicine>; Mary Barna Bridgeman, PharmD, BCPS, BCGP and Daniel T. Abazia, PharmD, BCPS, CPE, *Medical Cannabis: History, Pharmacology, And Implications for the Acute Care Setting*, (2017 Mar), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5312634/>; European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), *Medical Use of Cannabis and Cannabinoids*, (December 2018), http://www.emcdda.europa.eu/system/files/publications/10171/20185584_TD0618186ENN_PDF.pdf.

³³ Also called the Adult Use of Marijuana Act, it was a 2016 California voter initiative that legalized commercial marijuana.

³⁴ The voter initiative that successfully amended Colorado's State Constitution to allow for commercial marijuana.

³⁵ Hickenlooper, Governor John W. "Experimenting with Pot: The State of Colorado's Legalization of Marijuana.?", *Milbank Quarterly*, vol. 92, no. 2, 2014, p. 243-249. Web.

³⁶ Also referred to as "black market," "illicit market" is a more socially sensitive term.

³⁷ NCBI, *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*, (2017 Jan), [ncbi.nlm.nih.gov/books/NBK425757/](https://www.ncbi.nlm.nih.gov/books/NBK425757/).

³⁸ The New York Times, Aaron E. Carroll, *It's Time for a New Discussion of Marijuana's Risks*, (May 7, 2018), <https://www.nytimes.com/2018/05/07/upshot/its-time-for-a-new-discussion-of-marijuanas-risks.html>.

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With all of these influences combined — illicit market profit, unknown public health concerns, and federal scrutiny — state legislatures and regulatory agencies create and administer strict laws.³⁹

All of the commercial states share some of the same or similar regulations, including requirements that marijuana be (1) tracked from seed-to-sale-to-garbage via a state-controlled track and trace system, (2) labeled with THC⁴⁰ level, product name, verbatim warnings, marijuana warning symbol, and an identifier for the retailer, and (3) packaged with tamper-evident, child-resistant, and opaque materials. Additionally, the waste⁴¹ that marijuana produces, such as unusable trimmings, is also highly regulated and must be (1) tracked via the state's track and trace system, (2) kept in a secure waste receptacle, and (3) rendered unusable⁴² by mixing it with another material in a 1:1 ratio.

Overall, the two greatest environmental issues facing state legislatures and regulatory agencies tasked with marijuana regulation are: (1) packaging and labeling requirements and (2) uncomposted plant waste. Packaging and labeling requirements are often excessive, creating huge amounts of unnecessary waste. Additionally, the inability of states to compost marijuana waste taxes our already overflowing landfills.

According to the U.S. Environmental Protection Agency, organic waste in landfills “release methane, a potent greenhouse gas,” and since greenhouse gases cause global warming, this is an undesirable practice.⁴³ The bacteria that quickly decomposes organic material (aerobes) require oxygen to survive, so placing compostable material in landfills, which are sealed, will cause the materials to decompose much more slowly because the only bacteria decomposing the waste are anaerobes, which are much slower.⁴⁴ What follows is a summary of each state's laws in alphabetical order, followed by a chart displaying notable differences between the states.

³⁹ See the discussion of state laws below.

⁴⁰ THC stands for “tetrahydrocannabinol.” It is the psychoactive compound that gives an individual the “high” sensation.

⁴¹ Cannabis waste can come from multiple activities. It could be the waste of production such as the plants being inadequate/failed testing or the leftovers after trimming. It could be left over byproduct after the manufacturer has turned the cannabis into a concentrate, or it could simply just be a retailer throwing out old product.

⁴² Once cannabis waste is rendered unusable (mixed in a 1:1 ratio), it is treated like any other trash which is handled by the local waste disposal rules meaning that it depends on the locale. If the local waste disposal facility has a capacity for composting, then they can handle composting. If the local facility does not have a capacity to compost, then the cannabis waste does not get composted.

⁴³ U.S. Environmental Protection Agency (November 13, 2019), <https://www.epa.gov/recycle/composting-home>.

⁴⁴ Rachel Ross, *The Science Behind Composting*, Live Science (Sep. 12, 2018), <https://www.livescience.com/63559-composting.html>.

A. SUMMARIES OF STATE LAWS AND REGULATIONS

I. ALASKA

The Alcohol and Marijuana Control Office regulates commercial marijuana in Alaska.⁴⁵ The state laws pertaining to marijuana, AS 17.38 and 3 AAC 306, became effective February 24, 2015 and February 21, 2016, respectively.⁴⁶ Marijuana has to be tracked from seed-to-sale-to-garbage so as to prevent it from being diverted into the illicit market and to facilitate the collection of excise taxes; it is a common requirement in all of the commercial states.⁴⁷

Marijuana products must be packaged in accordance with the typical requirements⁴⁸ mandated by the above-mentioned statutes. Products must also be placed in additional packaging upon leaving the retail store if they are not already opaque and child-resistant, to keep out of the sight and reach of children.⁴⁹ A small bag of marijuana must also be labeled with numerous warnings such as — “marijuana is intoxicating and may be addictive, do not operate machinery or a vehicle while under the influence, there are health risks, for use by individuals twenty-one years and older, should not be used by pregnant women.”⁵⁰ These warnings in and of themselves may not be excessive, and even provide warnings similar to the ones on alcoholic beverages. However, in conjunction with other requirements, such as information on soil amendment, fertilizer, and crop production aids, it makes labeling excessive thereby requiring extra packaging on small products.

The packaging must also be labeled with the retail store and their license number to hold the retailer accountable for making lawful sales of products with good quality.⁵¹ Further extending the liability chain, products must be labeled with the soil amendment, fertilizer, and crop production aids as well as the testing facility that tested it to ensure the marijuana is safe for use.⁵² The packaging must also be labeled with the tracking number so that the state can use the track and trace system.⁵³ Most importantly, it must be labeled with the THC potency so that cus-

⁴⁵ Alaska, Alcohol and Marijuana Control Office, <https://www.commerce.alaska.gov/web/amco/marijuanaregulations.aspx>.

⁴⁶ Alaska Stat. §17.38 et cet.; Alaska Admin. Code tit. 3, §306 et cet.

⁴⁷ Alaska Admin. Code tit. 3, §306.730.

⁴⁸ Typical requirements include the level of THC, product names, etc.

⁴⁹ Alaska Admin. Code tit. 3, §306.345.

⁵⁰ *Id.* at §306.475(a). (Paraphrased for Brevity).

⁵¹ *Id.* at §306.345(b)(1).

⁵² *Id.* at §306.475(b).

⁵³ *Id.* at §306.470(c).

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tomers can objectively measure how much they use (similar to proof on alcohol).⁵⁴ All of these labeling requirements are common amongst the commercial states.

The waste must be made unusable to prevent scavengers from trying to use the substance and prevent diversion into the illicit market.⁵⁵ In order to be made unusable, it must be mixed with an equal amount of compostable or non-compostable materials.⁵⁶ Before making the waste unusable and disposing of it, marijuana businesses must give the regulatory board notice on prescribed form MJ-25: Marijuana Waste Disposal.⁵⁷

2. CALIFORNIA

Commercial marijuana is regulated by three different regulatory agencies in California: Bureau of Cannabis Control (“BCC”), California Department of Food and Agriculture (“CDFA”), and California Department of Public Health (“CDPH”).⁵⁸ CDFA⁵⁹ handles cultivation,⁶⁰ CDPH handles manufacturing under their Manufactured Cannabis Safety Branch (“MCSB”),⁶¹ and BCC handles all other license types, including retail licenses, distribution licenses,⁶² event licenses, and testing licenses.⁶³ Each agency operates under their own individual regulations, but their regulations regarding waste management, packaging, and labeling are nearly the same so I will discuss them as California’s regulations as a whole.

Warnings similar to Alaska’s regulations are required on the labeling which are reasonable and common amongst the commercial states.⁶⁴ It is similar to how alcohol and tobacco puts warnings on their products regarding matters such as pregnant consumers and drivers. A universal symbol (pictured below) demonstrates that the product has marijuana and it must be on the packaging in the size of 0.5 by 0.5 inches.⁶⁵ Packaging

⁵⁴ *Id.* at §306.345(b)(2).

⁵⁵ *Id.* at §306.740(b).

⁵⁶ *Id.* at §306.740(d).

⁵⁷ *Id.* at §306.740(c)(1).

⁵⁸ California Cannabis Portal, <https://cannabis.ca.gov/laws-regulations/>.

⁵⁹ Cal. Code Regs. Tit. 3, §8000 et cet.

⁶⁰ In any supply chain, there are the farmers/producers, distributors, and retailers. Cultivators are essentially the farmers of the cannabis industry.

⁶¹ Cal. Code Regs. Tit. 17, §40100 et cet.

⁶² Distributors handle transportation of product between licensees and may also handle product packaging depending on the state.

⁶³ Cal. Code Regs. Tit. 16, §5000 et cet.

⁶⁴ Cal. Code Regs. Tit. 17, §40408.

⁶⁵ *Id.* at §40412.

must be tamper-evident and child-resistant,⁶⁶ and all purchased marijuana goods must be placed in additional opaque exit packaging.⁶⁷



In California, a marijuana business must keep marijuana waste in a secure waste receptacle.⁶⁹ They can compost it or send it to a landfill, but it must be rendered unusable and unrecognizable just like the other commercial states.⁷⁰ The marijuana business needs to contract with a waste management company to receive the marijuana waste which can be composted, incinerated, or placed in a landfill.⁷¹ The marijuana business can self-haul or have the waste management pick up the marijuana waste.⁷² The marijuana business must also track all marijuana waste and receive a certified weight ticket from the authorized waste management business.⁷³ Marijuana waste is not allowed to be sold.⁷⁴ Marijuana is considered to be organic waste, which means that it can be composted.⁷⁵ Marijuana can be composted on-site, picked up by an authorized waste management business, or self-hauled to an authorized waste management business.⁷⁶

3. COLORADO

In Colorado, commercial marijuana is regulated by the Marijuana Enforcement Division under 1 CCR 212-2 R 307, which became effective in January of 2014.⁷⁷ The packaging/labeling requirements are simi-

⁶⁶ *Id.* at §40415.

⁶⁷ Cal. Code Regs. Tit. 16, §5413(c).

⁶⁸ Cal. Code Regs. Tit. 17, §40412(b).

⁶⁹ Cal. Code Regs. Tit. 16, §5055.

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ Cal. Code Regs. Tit. 3, §8108.

⁷⁶ *Id.* at §8108, 8308.

⁷⁷ Colorado Department of Revenue: Enforcement Division (2019), <https://www.colorado.gov/pacific/enforcement/marijuanaenforcement>; Colo. Code Regs. §212-2.307 R 307.

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lar to Alaska's,⁷⁸ and the waste management regulations follow a similar scheme as other states, for example the waste must be (1) rendered unusable and unrecognizable by grinding a 50% ratio with other materials,⁷⁹ (2) kept in a secure waste receptacle to avoid scavengers, and⁸⁰ (3) disposed of by a waste disposal facility, compost facility, or on-site composting.⁸¹ Of course, as with all commercial states, the business must track all of the marijuana waste as well.⁸²

In 2019, Colorado passed the Marijuana Waste Recycling bill, which allows an individual to transfer fibrous waste to another person so that the other person can create industrial fiber products such as hempcrete (concrete made from hemp), plywood substitute, rope, insulation, and other construction materials.⁸³ Rather than paying a waste management company to dispose of useable byproducts, the marijuana businesses can sell their mass waste byproduct to be recycled into useable resources for a small profit, which means more taxes and less landfills.⁸⁴ Until marijuana prohibition began in the 20th century, marijuana used to be a very popular raw material; this bill has allowed the state to return to utilizing a very useful byproduct.⁸⁵ It is an approach to cannabis waste recycling that creates more revenue and should be adopted by more states.

4. ILLINOIS

Starting in January of 2020, marijuana became legalized for commercial use in Illinois through the Cannabis Regulation and Tax Act.⁸⁶ With legalization came many of the same packaging, labeling, and waste requirements that other states have implemented. As the legalization is new, there is a limited amount of regulations at this time. Uniquely, in Illinois, it is prohibited to include the image of a marijuana leaf on packaging.⁸⁷

⁷⁸ *Id.* at §212-2.1002.5 R 1002.5.

⁷⁹ *Id.* at §212-2.307(D) R 307(A).

⁸⁰ *Id.* at §212-2.307(A) R 307(A).

⁸¹ *Id.* at §212-2.307(F) R 307(F).

⁸² *Id.* at §212-2.307(H) R 307(H).

⁸³ Colo. Rev. Stat. §44-212-202(5); Kenneth Morrow, *One Cultivator's Waste Is Another Business's Opportunity*, Cannabis Business Times (Sep. 20, 2019), <https://www.cannabisbusiness.com/article/cannabis-cultivator-grower-waste-business-opportunity/>.

⁸⁴ Kenneth Morrow, *One Cultivator's Waste is Another Business's Opportunity*, Cannabis Business Times (Sep. 20, 2019), <https://www.cannabisbusinesstimes.com/article/cannabis-cultivator-grower-waste-business-opportunity/>.

⁸⁵ Allison McNearney, *The Complicated History of Cannabis in the US*, History (April 17, 2020), <https://www.history.com/news/marijuana-criminalization-reefer-madness-history-flashback>.

⁸⁶ 410 Ill. Comp. Stat. Ann. 705 (2019).

⁸⁷ 410 Ill. Comp. Stat. Ann. 705/55-21(f)(4) (2019).

In Illinois, marijuana waste is strictly regulated, mimicking the strict regulations in other commercial states. However, Illinois shares a unique waste disposal notification requirement with Alaska that is not found in other commercial states. Before destruction, the Illinois Department of Agriculture and the Department of State Police must be notified of the intended destruction.⁸⁸ Any and all marijuana byproduct, scrap, and harvested marijuana not intended for distribution must be destroyed, and the Department of Agriculture may require that an employee of the Department of Agriculture or the Department of Financial and Professional Regulation be present during the destruction.⁸⁹ As mentioned, this is a newly legalized state and regulations are still forthcoming.

5. MAINE

In June 2019, Maine created a provisional regulatory structure for commercial marijuana, which is regulated by the state's Department of Administrative and Financial Services ("DAFS") Office of Marijuana Policy.⁹⁰

Maine has several specific labeling requirements. First, labeling text must be on the outermost layer of the packaging with at least size 6 font or 1/12 inch.⁹¹ Second, the label must have the identification number of the testing facility and testing results.⁹² Third, the label must also have the cultivation date or manufactured date.⁹³ Most notably, the required information may be put on the packaging with a "peel-back accordion style, expandable, extendable, or layered label."⁹⁴ It is similar to the directions often found in prescription bags or over the counter medications. Maine has the same waste management rules introduced at the start of this section — track, render unusable, and secure it.

6. MASSACHUSETTS

The Cannabis Control Commission is the state agency that regulates commercial marijuana in Massachusetts since December of 2018.⁹⁵ Of the ten states, Massachusetts appears to have the most unfavorable label-

⁸⁸ *Id.* at 705/55-15(b).

⁸⁹ *Id.* at 705/55-15(a); 410 ILCS 705/55-15(b).

⁹⁰ Maine Department of Administrative and Financial Services: Office of Marijuana Policy, <https://www.maine.gov/dafs/omp/>.

⁹¹ 18-691 Me. Code R. §11.1.2(B).

⁹² *Id.* at §11.1.2(F).

⁹³ *Id.* at §11.1.2(I).

⁹⁴ *Id.* at §11.1.2(J).

⁹⁵ Massachusetts Cannabis Control Commission, <https://mass-cannabis-control.com/about-us-2/>.

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ing and packaging requirements, because under 935 CMR 500.105(5) a cultivator must place a label on each package with wording at least 1/16 inch stating:

1. The name and registration number of the cultivator as well as the retailer's business telephone number, email address, and website information;
2. Quantity of usable marijuana contained in the package;
3. Date the contents were packaged and a statement as to whether the retailer or cultivator did the packaging;
4. Batch number, serial number, and bar code;
5. Cannabinoid profile;
6. Statement and seal certifying that the product has passed testing and date of testing; and
7. The following symbols.⁹⁶



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Furthermore, a manufacturer must also adhere to a few other requirements if the substance needs to pass through a manufacturer to process the marijuana into edibles or concentrates.⁹⁸ Some of the additional requirements include: the business information of the manufacture just like the cultivator⁹⁹, net weight¹⁰⁰, and type of marijuana (including the processing technique or solvents).¹⁰¹ In contrast, other commercial states only require one of the entities in the chain of distribution to be listed on the label such as the retailer, manufacturer, or cultivator and possibly the testing facility.¹⁰² Compare this to alcohol such as Jack Daniel's or Bud Light; alcohol is not required to have a retailer listed on the container. Imagine a bottle of Jack Daniel's that says "Walmart" or "Costco" on it.

⁹⁶ 935 Mass. Code Regs. §500.105(5).

⁹⁷ *Id.*

⁹⁸ *Id.* at §500.105(5)(b)-(d).

⁹⁹ *Id.* at §500.105(5)(b)(1).

¹⁰⁰ *Id.* at §500.105(5)(b)(4).

¹⁰¹ *Id.* at §500.105(5)(b)(6).

¹⁰² Alaska Admin. Code tit. 3, §306.345(b)(1); Alaska Admin. Code tit. 3, §306.475(b); Cal. Code Regs. Tit. 17, §40404(b)(2).

Finally, once marijuana reaches the retailer, they have their own packaging/labeling requirements.¹⁰³ Along with the required tamper or child-resistant packaging, packaging and labels have to be opaque or plain, resealable if there is more than one use for the product, and include this statement in 10 point font Times New Roman, Helvetica, Arial “KEEP OUT OF REACH OF CHILDREN.”¹⁰⁴ Additionally, packaging must be certified by a third party packaging testing firm.¹⁰⁵ In the end, all of this packaging and labeling is cumulative, whereas most states only require one entity in the chain of distribution to handle packaging and labeling without the need for information of every entity involved because that information is already in the track and trace system.

The marijuana disposal must be witnessed by at least two people.¹⁰⁶ Aside from that, the waste management regulations are, in large part, the same as the other states. However, the regulatory agency gives preference to environmentally favorable waste disposal; if a business creates more than one ton of organic waste (i.e. plant or other organic based waste) every week, it must divert this material to a compost or anaerobic digestion operation rather than the trash.¹⁰⁷ Keep in mind, once cannabis is rendered unusable and transferred to the waste disposal facility, local county and/or city waste laws control.

7. MICHIGAN

Michigan legalized commercial marihuana¹⁰⁸ on December 6, 2018 with the Michigan Regulation and Taxation of Marihuana Act. Under the Department of Licensing and Regulatory Affairs, the Marijuana Regulatory Agency regulates marijuana.¹⁰⁹ The state has issued emergency regulations¹¹⁰ because the legislation legalized commercial marijuana

¹⁰³ 935 Mass. Code Regs. §500.105(6)(a).

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.* at §500.105(12)(d).

¹⁰⁷ Mass. Cannabis Control Comm’n, Commonwealth of Mass., *Guidance on Cannabis Waste Management Requirements: Managing Solid Waste Materials*, 1. 2019.

¹⁰⁸ Michigan legislation uses the antiquated spelling that replaces the “j” with an “h.” In contrast, the regulatory agency used the modern spelling which uses a “j.” The state frequently uses both interchangeably.

¹⁰⁹ Mich. Comp. Laws Ann. § 333.27951 (West 2018).

¹¹⁰ The emergency regulations will be in effect until July 3, 2020. When a regulatory agency creates new laws, there usually must be a process such as public hearings or a public comment period. When legislation gets passed that requires a brand-new agency to be running in a year, there is not enough time to go through the formal legislative proceedings. Therefore, the agency puts together temporary (emergency) rules until they can go through the formal administrative procedure for creating laws. This has commonly happened when states have legalized commercial cannabis.

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with little time to create regulations through the typically long and arduous process.¹¹¹

The packaging requires the producer, distributor, tester, and retailer to be on the package by name and number.¹¹² The packaging must also include an identification number for the package or harvest, date of harvest, name of strain, net weight, concentration of THC and CBD,¹¹³ activation time¹¹⁴ expressed in words or a pictogram, testing information, and a verbatim warning telling the customer to keep the product away from children and that driving while under the influence is illegal.¹¹⁵ The phone number for the National Poison Control Center must also be included and, additionally, the universal marijuana warning symbol must be attached (see below).¹¹⁶



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Again, the marijuana waste must be rendered unusable by mixing it in a 1:1 ratio with specified materials.¹¹⁸ Such mixing materials may include paper, plastic, cardboard, food, grease or other compostable oil waste, fermented organic matter or other compost activators, or soil.¹¹⁹ The waste must be disposed of in either a manned and permitted solid

¹¹¹ Michigan Department of licensing and Regulatory Affairs: Marijuana Regulatory Agency, https://www.michigan.gov/lara/0,4601,7-154-89334_79571_82631--,00.html.

¹¹² Mich. Marijuana Reg. Agency, Dep't of Licensing and Reg. Aff., Adult-Use Marihuana Establishments, Emergency Rule 49. (2019).

¹¹³ While THC is the psychoactive chemical that creates a sense of euphoria, cannabidiol ("CBD") tends to provide a similar therapeutic effect without the feeling of being "high." The two chemicals affect different receptors on the brain and tend to be inversely related.

¹¹⁴ The intoxicating effect of marijuana may activate at different times depending on the product. For example, smoking a joint will likely have an immediate effect, but eating an edible may take 45 minutes to two hours for the intoxication to take effect.

¹¹⁵ Mich. Marijuana Reg. Agency, Dep't of Licensing and Reg. Aff., Adult-Use Marihuana Establishments, Emergency Rule 49. (2019).

¹¹⁶ *Id.*

¹¹⁷ Michigan Department of licensing and Regulatory Affairs: Marijuana Regulatory Agency: Updated Universal Symbol, https://www.michigan.gov/lara/0,4601,7-154-89334_79571_82631-485382--,00.html.

¹¹⁸ Mich. Marijuana Reg. Agency, Dep't of Licensing and Reg. Aff., Adult-Use Marihuana Establishments, Emergency Rule 37(1). (2019).

¹¹⁹ *Id.*

waste landfill or compostable materials operation, an in-vessel digester, or through incineration.¹²⁰

8. NEVADA

The Department of Taxation is the state agency that regulates commercial marijuana in Nevada under the Regulation and Taxation of Marijuana Act since January of 2017.¹²¹ The waste management regulations are similar to other states by grinding the marijuana with other materials to render the substance unusable and unrecognizable.¹²²

The cultivation facility must label the packaging with the name of the marijuana establishment and its license number, the number of the medical marijuana establishment registration certificate if applicable, batch number, lot number, date of final harvest, date of final testing, date of packaging, cannabinoid profile, potency levels, terpenoid profile of the top three terpenes as determined by the marijuana testing facility, expiration date, quantity of marijuana, and must have the warning “THIS IS A MARIJUANA PRODUCT” in all capitalized letters (see example below).¹²³ Manufacturers and retailers also have their own requirements, but there aren’t any material differences.¹²⁴ The packaging requirements are the same as other commercial states except that it has large labels that can be summarized with a QR code.¹²⁵

¹²⁰ Mich. Marijuana Reg. Agency, Dep’t of Licensing and Reg. Aff., Adult-Use Marihuana Establishments, Emergency Rule 37(5). (2019).

¹²¹ Nevada Department of Taxation, https://tax.nv.gov/FAQs/Marijuana_Proposed_Temporary_Regulation_T002-17/.

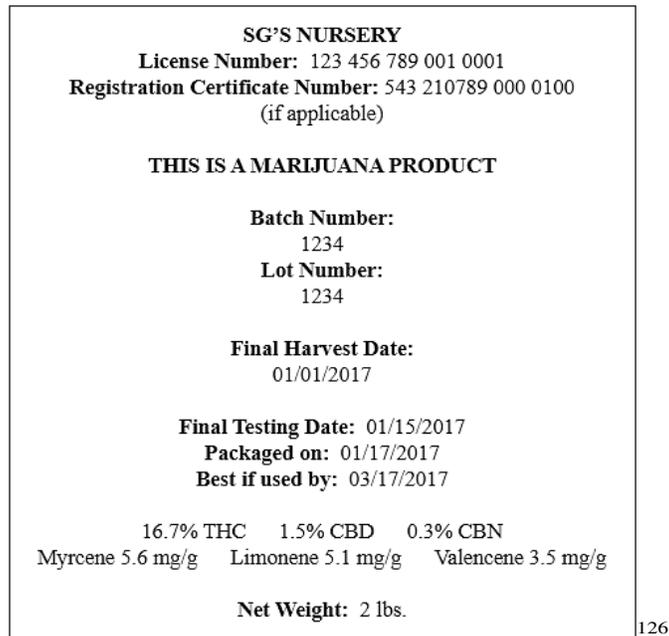
¹²² Nev. Admin. Code 453D.745.

¹²³ Nev. Admin. Code 453D.800 et cet.

¹²⁴ *Id.*

¹²⁵ 935 Mass. Code Regs. §500.105(5)(b)(6).

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9. OREGON

The Oregon Liquor Control Commission is the administrative body that regulates commercial marijuana after the passage of Measure 91 in 2014;¹²⁷ their regulations are under Chapter 845, Division 25.¹²⁸ Oregon's state regulations regarding waste management are similar in nature to the other commercial states (see image below).¹²⁹ However, one waste management regulation that is different from other states is that Oregon allows "a licensee to give or sell marijuana waste to a producer, processor¹³⁰, or wholesale licensee or research certificate holder."¹³¹

¹²⁶ Nev. Admin. Code 453D.816(2).

¹²⁷ Oregon Secretary of State: Oregon Liquor Control Commission, Chapter 845, <https://secure.sos.state.or.us/oard/displayChapterRules.action?selectedChapter=146>.

¹²⁸ Or. Admin. R. 845-025.

¹²⁹ *Id.* at 845-025-7750; Or. Liquor Control Comm'n, *Marijuana Waste Management*. (2018).

¹³⁰ Synonymous with manufacturer, the processor often includes transforming cannabis into edibles, cannabis concentrates, and sometimes responsible for packaging the marijuana product.

¹³¹ Or. Admin. R. 845-025-7750(2).

Marijuana Item	Methods to render items unusable prior to disposal	Disposal Method
Marijuana Plants and Usable Marijuana	Mix with yard debris, wood chips, sawdust, manure, etc.	Compost, landfill if composting not available or feasible
	Mix with soil, sand, other garbage	Landfill if composting not available or feasible
	Burning as permitted by law (see below)	Compost, landfill if composting not available or feasible
Liquid Concentrate or Extract		
Determine if the concentrate is hazardous waste	If not a hazardous waste, absorb in cat litter, sand or similar substance	Landfill
	If a hazardous waste contact DEQ for assistance with how to manage	Hazardous Waste disposal
Solid concentrate or extract		
Determine if the concentrate is hazardous waste	If not a hazardous waste, mix with soil, sand, garbage	Landfill
	If a hazardous waste contact DEQ for assistance to manage as hazardous waste	Hazardous Waste disposal

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The labeling requirements are significantly similar to the other states' labeling requirements.¹³³ For example, the packaging or exit packaging must be child-resistant and authorized by a third party tester.¹³⁴ However, Oregon does also have a caveat that limits the requirements if the product is inherently too small to fit all of the usual labeling requirements.¹³⁵

10. WASHINGTON

Commercial marijuana is legislated by Chapter 6.90 RCW (“Revised Code of Washington”) beginning on December 6, 2012. The Liquor and Cannabis Board is the administrative body that regulates marijuana with 314-55 WAC (“Washington Administrative Code”).¹³⁶ The waste management regulations are similar to the other commercial states — track, render unusable, and secure cannabis waste.¹³⁷

The packaging and labeling requirements, however, are vastly different from other states.¹³⁸ In 2019, Washington significantly diminished its packaging and labeling requirements.¹³⁹ Now, flower¹⁴⁰ does

¹³² Or. Liquor Control Comm’n, *Marijuana Waste Management*. (2018).

¹³³ Or. Admin. R. 845-025-7030.

¹³⁴ Or. Admin. R. 845-025-7020.

¹³⁵ Or. Admin. R. 845-025-7030(11)(12).

¹³⁶ Washington State: Liquor and Cannabis Board, <https://lcb.wa.gov/laws/current-laws-and-rules>.

¹³⁷ Wash. Admin. Code §314-55-097.

¹³⁸ Wash. Admin. Code §314-55-105.

¹³⁹ Wash. Rev. Code §18-11-005.

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not even need to be child-resistant.¹⁴¹ The requirements for concentrates and infused products remain similar to other states, but the requirements for the grassy substance that is typically smoked is vastly simpler. The agency's reasoning was because the "the use of biodegradable packaging and reduction of the market's environmental impacts suggest that additional options to support industry sustainability and product safety are needed."¹⁴²

Instead of placing the labeling requirements on the package itself, it merely needs an internet link or QR code and verbal disclosure upon request.¹⁴³ The digital link will inform the customer of all pesticides applied to the plant and the growing medium used during production or the marijuana used when creating a manufactured product (concentrate or infused product).¹⁴⁴ Further, upon the request of the consumer, the retail store must disclose the certified lab that conducted the test of the product in question as well as the results of the quality assurance test.¹⁴⁵

¹⁴⁰ The psychoactive part of a cannabis plant are the unfertilized flowers. "Flower" refers to the intoxicating grassy substance that can either be smoked or transformed into edibles or marijuana concentrates.

¹⁴¹ Wash. Admin. Code §314-55-105(5).

¹⁴² Proposed Rule WSR 19-22-030 from Wash. Liquor and Cannabis Bd. (proposed Oct. 30, 2019).

¹⁴³ Wash. Admin. Code §314-55-105(3)(4).

¹⁴⁴ Wash. Admin. Code §314-55-105(3).

¹⁴⁵ Wash. Admin. Code §314-55-105(4).

B. DIFFERENTIAL CHARTS

Packaging and Labeling Comparison Chart	
Alaska	Additional exit packaging if it is not already opaque and child-resistant
California	Additional opaque exit packaging
Colorado	Exit packaging is not required if initial package is already child-resistant
Illinois	Regulations have not been passed yet
Maine	Allows for a “peel-back accordion style, expandable, extendable, or layered label”
Massachusetts	Cumulative labeling across the chain of distribution
Michigan	Nothing noteworthy
Nevada	Large labels
Oregon	Limits labeling requirements for items that are inherently small
Washington	Internet link or QR code as substitute. Less requirements on flower packaging.

Waste Management Comparison Chart	
Alaska	Notify agency three days before marijuana waste disposal via form
California	Nothing noteworthy
Colorado	Fibrous waste can be transferred to another person to create industrial fiber products
Illinois	Before destruction, Department of Agriculture and Department of State Police must be notified. Department of Agriculture may require that an employee of the Department of Agriculture or Department of Financial and Professional Regulation be present during destruction.
Maine	Nothing noteworthy
Massachusetts	Composting is prioritized unless it is not feasible. Businesses must compost if they produce more than one ton of organic waste a week
Michigan	Nothing noteworthy
Nevada	Nothing noteworthy
Oregon	May sell marijuana waste to other licensees or research certificate holder
Washington	Nothing noteworthy

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IV. COMPARATIVE ANALYSIS OF STATE LAWS AND REGULATIONS

A. PACKAGING AND LABELING

1. EXCESSIVE LABELING

The biggest problem with packaging and labeling are the numerous regulations that result in extra packaging being used to fit everything on the product.¹⁴⁶ For example, a retailer may sell individual pre-rolled joints, a product that, without the required labeling, can easily fit in a person's pocket. However, in order to fit all of the warnings and identification numbers, packages end up being significantly larger than the actual product requires. Once the product is used, the packaging often goes straight to the garbage — specifically, a landfill.

States with cumulative labeling requirements across the chain of distribution for cultivators, processors, and retailers, such as Massachusetts, make this environmental impact particularly problematic. Most of the requirements are similar, but each link of the chain still has a few obligations separate from the other. The requirements are not so bad if they simply apply to a cultivator selling flower to a retailer, because that would only require one set of labeling requirements; however, the cultivator may sell the flower to the processor to turn the flower into dabs or an edible, which creates additional packaging requirements for each party involved in the chain of distribution. Once each product has been created, labeled, and packaged, the processor will turn it over to the retailer, who must add their own packaging requirements. Now, one small product must be packaged within a container which fits the labels of the cultivator, processor, and the distributor. This requirement is particularly problematic for an end product which is very small, because that product would need very little packaging if it were not for the extensive labeling requirements.

Some states have taken steps to address the excessive packaging required for small products. For example, Maine allows layered labels,¹⁴⁷ Oregon limits the requirements for items that are inherently too small to fit all of the usual labeling requirements,¹⁴⁸ and Washington allows for an internet link or QR code¹⁴⁹ as a substitute.¹⁵⁰ For example,

¹⁴⁶ As summarized above.

¹⁴⁷ 18-691 Me. Code R. §11.1.2(J); It is also called an accordion style label.

¹⁴⁸ Or. Admin. R. 845-025-7030(11)(12).

¹⁴⁹ A QR Code works similar to a bar code being scanned at your local grocery store. However, a QR code allows the person to use their smartphone to scan the QR Code which links them to a webpage displaying the relevant information.

a retailer could sell pre-rolls¹⁵¹ with limited labeling requirements, an accordion style label, internet link, or QR code, depending on the state. These regulatory options balance the need for warnings and accountability with unnecessary packaging and environmental harm.

Instead of having each license in the chain of distribution having their own packaging and labeling requirements, one license should handle the packaging and labeling. For example, California separates the marijuana chain into cultivators, manufacturers, distributors, testers, and retailers. For the most part, distributors are responsible for packaging and labeling requirements, leaving everything ready for sale once it reaches the retailer.

2. EXIT PACKAGING

Often, the product will already be packaged neatly with all or most of the requirements but will still need to be placed in an exit package upon leaving the retail store. For example, if someone goes to the store to buy gummy edibles, which often come in a container the size of a circular pill holder in California, the store would have to put it in an opaque child-resistant package. According to Ynez Carrasco, the licensing and compliance employee for Apothecarium,¹⁵² the customers will immediately take the product out of the exit package after leaving the store and then throw the exit package on the ground.¹⁵³ San Francisco has a “good neighbor policy” that requires dispensaries to “maintain the premise, adjacent sidewalks and/or ally in good condition at all times.”¹⁵⁴ In order to abide by the city ordinance, the dispensary had to put a trash can outside of the store to combat the exit packaging littering. This increases costs for the business, which must now maintain the trash can being used by customers and the public at large. The ordinance completely defeats the purpose of having an exit package in the first place and encourages individuals to be less accountable for their own waste disposal.

¹⁵⁰ Wash. Admin. Code §314-55-105(3)(4).

¹⁵¹ A pre-roll is joint that has been rolled prior to sale so that the customer does not have to purchase marijuana and roll the marijuana into the paper themselves. It is analogous to how people may purchase tobacco and roll it themselves into a cigarette or simply just purchase cigarettes that have already been rolled prior to purchase. However, in the cannabis industry, it is much more common for people to purchase marijuana separately and prepare the amount they wish to use.

¹⁵² A San Francisco cannabis dispensary.

¹⁵³ E-mail from Ynez Carrasco, Licensing and Compliance Employee, Apothecarium to Kevin Dalia, Author (Feb. 4, 2019, 10:22 PST) (on file with author).

¹⁵⁴ San Francisco Municipal Code Section 1609(b)(19)(B).

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Even if the exit package makes it home with the customer, the customer may fiddle with the exit package for several long minutes and immediately throw it away afterwards. The purpose of child-resistant exit packaging is to keep the product away from children, but if the product itself is not in child-resistant packaging, the whole purpose of child-resistant exit packaging is defeated because it was immediately thrown away. For states such as Alaska and Colorado, this regulation creates a problem because child-resistant exit packaging will be used if the product package itself is not child-resistant.

Compare this to pharmaceuticals, when a person goes to Walgreens or CVS to pick up their prescription, the bottle itself is always child-resistant, but the little baggie the pharmacist puts the bottle in is not child-resistant. The average person may put the pill bottles on a table or medicine cabinet and throw away the little baggie. California used to require all exit packaging be opaque and child-resistant in addition to the product packaging also being child-resistant. However, they have addressed these redundant “nesting doll” requirements by eliminating the need for child-resistant exit packaging. Now, California requires only that the exit package be opaque.

Child-resistant and/or opaque packaging in and of itself is unusual when compared to alcohol, which has no such requirements. A person 21 years of age or older can buy a six-pack of canned Budlight and bring it home with no additional requirements to put the product in opaque or child-resistant packaging, despite that product being no more difficult for a child to open than a six pack of canned Pepsi. Yet, with marijuana products, states impose additional labeling and packing requirements, which result in waste and additional cost, with no concrete justifications showing marijuana to be more dangerous to alcohol.

Now, California only requires the exit packaging be opaque. Although this is an improvement, it is still a wasteful practice, and not one that is seen on other brain-altering substances, most notably alcoholic beverages. For example, a person 21 years of age or older can buy a case of beer from the grocery store, it does not need to be placed in a large opaque package unlike marijuana products that are required to do so.

3. RECYCLABLE PACKAGING

In addition to labeling and packaging requirements being excessive and wasteful, they are also not environmentally friendly. Marijuana businesses often don't use recyclable material for packaging, and none of the ten legalized states require businesses to do so. If states are going to require excessive packaging, which results in extreme amounts of waste,

states should prioritize minimizing the harm those packaging and labeling requirements inflict by requiring more environmentally friendly materials. However, many environmentally friendly solutions are not conducive to meeting the packaging and labeling requirements because they increase the cost to the business. For example, mason jars (which are recyclable) could be utilized as containers for selling flower rather than just storage containers at the store, but it may not be financially sustainable at this time.

One of the biggest problems with using recyclable packaging for marijuana is cost.¹⁵⁵ Due to competition, extra costs exclusive to the industry, and lack of federal tax breaks, a marijuana business has low profit margins compared to other industries. Therefore, businesses are left to cut costs where they can — such as packaging. One solution to this would be to provide tax cuts for businesses that use recyclable materials in their packaging. However, federal taxes are a significant portion of the cost of doing business¹⁵⁶ and would likely not be willing to grant such a favorable tax cut to a business that is still illegal on a federal level.¹⁵⁷

Even when individual businesses try to implement their own environmentally friendly practices, they often face unanticipated hurdles. For example, Doob Tubes¹⁵⁸ sold in Washington were so small that, even though they were packaged in recyclable materials, they fell through the grates of the recycling machine.¹⁵⁹ In Denver, a program implemented by CannaBotica created incentives for customers to bring back their packaging — for every ten containers a customer returned, they received one free pre-roll for being “green.”¹⁶⁰ However, some states, including

¹⁵⁵ Kristen Millares Young, *Garbage from Washington State’s Booming Pot Industry Clogs Gutters, Sewers and Landfills*, The Washington Post (Aug 14, 2018), https://www.washingtonpost.com/national/garbage-from-booming-weed-industry-overruns-washington-gutters-sewers-and-landfills/2018/08/14/66f02384-9685-11e8-a679-b09212fb69c2_story.html?noredirect=on.

¹⁵⁶ Cannabis businesses have the same costs as any other business, but they have to pay more excise taxes like tobacco and alcohol. More importantly, they do not receive the tax deductions that every other business receives because it is federally illegal (IRC 280(e)). Plus, they do not even have access to mainstream banking.

¹⁵⁷ Steve Deangelo, *Op-Ed: How the U.S. Tax Code Keeps the Illegal Market for Marijuana Alive and Well*, L.A. Times (July 15, 2019), <https://www.latimes.com/opinion/op-ed/la-oe-deangelo-marijuana-cannabis-tax-deductions-20190715-story.html>.

¹⁵⁸ Doob Tubes are small containers for doobies. A doobie is a synonym for a joint.

¹⁵⁹ Kristen Millares Young, *Garbage from Washington State’s Booming Pot Industry Clogs Gutters, Sewers and Landfills*, The Washington Post (Aug 14, 2018), https://www.washingtonpost.com/national/garbage-from-booming-weed-industry-overruns-washington-gutters-sewers-and-landfills/2018/08/14/66f02384-9685-11e8-a679-b09212fb69c2_story.html?noredirect=ON.

¹⁶⁰ *Id.*

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California, prohibit marijuana businesses from giving out free marijuana, limiting the ways in which they can incentivize their customers.¹⁶¹

B. WASTE MANAGEMENT

Marijuana creates a significant amount of plant waste. Between 2014¹⁶² and 2017 in Washington alone, 1.7 million pounds of plant waste was created.¹⁶³ It is a common practice among national businesses, such as banks and security companies like ADT, to refrain from servicing marijuana businesses due to marijuana being illegal on a federal level.¹⁶⁴ Luckily, waste disposal is handled on a local level, so waste management facilities will accept plant waste. However, in the initial period of legalization, some waste management facilities would not accept marijuana because they were afraid of marijuana possession charges from the federal government.¹⁶⁵

Marijuana is strictly tracked from seed-to-sale and even to waste. Although these regulations are trying to oversee important concerns such as keeping the product off the illicit market, keeping children safe, and collecting taxes, the regulations are not doing their part to maintain environmentally friendly practices that limit waste.¹⁶⁶ Instead, the regulations tend to just provide the options to the business without creating a priority or incentive for composting.

The commercial states have similar regulations for the most part, but many of them have one or two unique regulations. For example, Alaska requires a business to submit a form to the state Alcohol and Marijuana Control Office to dispose of marijuana waste. Illinois also requires the Department of Agriculture and Department of State Police to be notified to dispose marijuana waste. It seems to be an unnecessary hindrance to have to get permission to conduct a normal, everyday business activity, disposing of garbage, when the track and trace system al-

¹⁶¹ *Id.*

¹⁶² Marijuana farms were first licensed for use in Washington in 2014.

¹⁶³ Lester Black, *Washington's Weed Industry Has a Million-Pound Waste Problem*, *The Stranger* (July 26, 2017), <https://www.thestranger.com/weed/2017/07/26/25307388/washingtons-weed-industry-has-a-million-pound-waste-problem>.

¹⁶⁴ Sophie Quinton and April Simpson, *Cannabis Banking Challenges in Legal States Go Far Beyond Pot*, *Insurance Journal* (October 16, 2019), <https://www.insurancejournal.com/news/national/2019/10/16/545303.htm>; ADT confirmed that it does not serve cannabis businesses due to federal prohibition via direct communication.

¹⁶⁵ Kristen Millares Young, *Garbage from Washington State's Booming Pot Industry Clogs Gutters, Sewers and Landfills*, *The Washington Post* (Aug 14, 2018), https://www.washingtonpost.com/national/garbage-from-booming-weed-industry-overruns-washington-gutters-sewers-and-landfills/2018/08/14/66f02384-9685-11e8-a679-b09212fb69c2_story.html?noredirect=ON.

¹⁶⁶ Susie Peterson, *Seed-to-Sale Tracking 101*, *Daily Marijuana Observer* (Sep. 27, 2018), <https://mjobserver.com/business/seed-to-sale-tracking-101/#:~:text=>.

ready documents these activities. Every state requires a tracking system so that the state can come in at any time to easily identify all marijuana and make sure that none has been diverted into the illicit market. However, getting approval every time a business wants to take out the garbage is tedious, costly, and time consuming. Instead, it would be easier on taxpayer dollars and the business itself to simply just have a random check by the state administrative agency a few times a year and keep an eye on the track and trace system to make sure there are no significant fluctuations in the businesses' quantity of waste disposal.

I. COMPOSTING

All of the commercial states require marijuana waste to be mixed with other materials in a 1:1 ratio. If the material mixed with the marijuana is compostable,¹⁶⁷ then the waste can be composted. The state either lists which compostable materials are allowed and specifies that businesses can request permission to use other materials, or the state just generically says "compostable materials."¹⁶⁸ For example, Colorado lists multiple materials that can be used.¹⁶⁹ If the material mixed with the marijuana is not compostable¹⁷⁰, then it goes to a landfill. However, marijuana businesses tend to choose the landfill method because it is cheaper, easier, and more financially feasible. Composting requires its own infrastructure of waste management facilities offering the service (if there is not already one) and separate trash bins, both of which require money. Additionally, the smell may be noxious, and people often resist changing the way they have been disposing of garbage for years.¹⁷¹

A popular composting method for cultivators is the Bokashi process.¹⁷² After about two weeks of fermenting, the compostable items produce a liquid that can be used as a fertilizer and a solid portion that can be used as a soil amendment.¹⁷³ Therefore, the waste is being disposed of and becomes useful as well. In farms and rural areas, this can be one of the best ways of handling marijuana waste.¹⁷⁴

¹⁶⁷ Such as food or cardboard.

¹⁶⁸ Colo. Code Regs. §212-2.307(E)(1).

¹⁶⁹ *Id.*

¹⁷⁰ Such as plastic.

¹⁷¹ Amelia Josephson, *The Economics of Composting*, Smart Asset (Aug 20, 2018), <https://smartasset.com/mortgage/the-economics-of-composting>.

¹⁷² Peter Gorrie, *Recycling Cannabis Organics*, BioCycle (July 2018), <https://www.biocycle.net/2018/07/06/recycling-cannabis-organics/>.

¹⁷³ *Id.*

¹⁷⁴ *Id.*

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However, the Bokashi method would likely not be very practical in cities due to the smell. Businesses located in urban environments would need to contract with a waste disposal facility to manage their waste and there may not be an infrastructure for composting. Plus, even if the waste management facility has the capacity to compost, the marijuana waste must be rendered “unusable” **on the marijuana business’ premises** i.e. mixed together with another compostable material at a 1:1 ratio. For composting in a rural environment, this may not be problematic because there is likely plenty of compostable material lying around that can be mixed with the marijuana waste, but for licensees in urban environments, they likely would not have enough compostable materials to mix with the marijuana waste.¹⁷⁵ Therefore, the waste management facility may need to bring the mixing material and would create additional costs for the business because a waste management facility may charge by weight and the extra service.¹⁷⁶

Marijuana businesses do not receive many of the tax deductions that other businesses get since marijuana is federally illegal.¹⁷⁷ High taxes emerge from federal, state, and local jurisdictions. Therefore, it is much harder to earn a profit, forcing businesses to cut costs in other areas such as easy, already established landfills, or put the additional cost of the products onto the customers.¹⁷⁸ Additionally, the increase in cost allows a thriving illicit market to continue to flourish, since the street-corner drug dealers do not pay taxes; basic economics demonstrate that customers tend to buy the cheaper product and thereby further lower the regulated marijuana business profit.¹⁷⁹ With a lack of profits compared to other businesses, a cannabis business does not have the flexibility to increase costs in waste disposal or more expensive eco-friendly packaging.

Massachusetts appears to have the best regulations around composting because it gives preference to composting methods by compelling businesses to use a compost method if it is feasible.¹⁸⁰ The landfill should only be used if composting is not practical.¹⁸¹ Plus, a marijuana business is required to use composting if the business creates more than one ton of organic waste every week, it must divert this material to a

¹⁷⁵ Bruce Kennedy, *The Cannabis Industry Generates Tons of Extra Waste. Here’s Why*, Leafly (Nov. 4, 2019), <https://www.leafly.com/news/industry/the-cannabis-industry-generates-tons-of-extra-waste-heres-why>.

¹⁷⁶ *Id.*

¹⁷⁷ IRC 280(e).

¹⁷⁸ Steve Deangelo, *Op-Ed: How the U.S. Tax Code Keeps the Illegal Market for Marijuana Alive and Well*, L.A. Times (July 15, 2019), <https://www.latimes.com/opinion/op-ed/la-oe-deangelo-marijuana-cannabis-tax-deductions-20190715-story.html>.

¹⁷⁹ *Id.*

¹⁸⁰ 935 Mass. Code Regs. §500.105(12)(c).

¹⁸¹ *Id.*

compost or anaerobic digestion operation rather than the trash.¹⁸² In contrast, Alaska and Illinois have the worst waste management regulations because state agencies have to be notified every time marijuana waste is disposed thereby creating an unnecessary burden on the business. Instead, the state can achieve its goals by monitoring the track-and-trace system for abnormalities and conduct random checks.

2. RECYCLING AND RESALE

Most of the states do not allow for the sale of marijuana waste because, as stated by California's Bureau of Cannabis Control, it "creates opportunities for cannabis goods and cannabis waste to be improperly used or diverted into the illegal market."¹⁸³ However, a recently passed bill in Colorado creates an exception.¹⁸⁴ Colorado allows for fibrous waste to be sold or given to others to create industrial fiber products.¹⁸⁵ Essentially, it carves out a useful way for businesses to recycle waste that would normally go into a landfill and even receive some revenue for it. Similarly, Oregon also allows for the sale of cannabis waste to a processor, producer, wholesaler, or researcher.¹⁸⁶ The cannabis waste is typically used for research or put in an industrial press to create various oils. Unfortunately, most of the commercial states prohibit the sale of marijuana waste despite the fact that it could be tracked in the track and trace system for significant fluctuations in waste and regulators could conduct random compliance checks.

Overall, businesses should utilize composting methods and be able to sell useful cannabis waste. Legislatures could mandate the prioritization of composting, but that could also increase costs to the business, thereby creating a stronger possibility of bankruptcy. Instead, businesses that dispose of the marijuana through environmentally friendly means such as grinding with compost materials or the Bokashi process should receive tax deductions, so as to incentivize the business to participate in environmentally friendly practices.

¹⁸² Mass. Cannabis Control Comm'n, Commonwealth of Mass., *Guidance on Cannabis Waste Management Requirements: Managing Solid Waste Materials*, 1. 2019.

¹⁸³ Cal. Code Regs. tit. 16, § 5055 Bureau of Cannabis Control's addendum to the Final Statement of Reasons to the Medicinal and Adult-Use Regulation and Safety Act.

¹⁸⁴ Colo. Rev. Stat. §44-212-202(5).

¹⁸⁵ *Id.*

¹⁸⁶ Or. Admin. R. 845-025-7750(2).

V. CONCLUSION

Cannabis businesses do not have access to mainstream services, so they have to pay more for specialized services (ADT, etc.). They do not have access to banking and loans. Investors are hesitant to touch the industry. They pay more taxes than regular businesses like alcohol and tobacco, but do not receive the same deductions as alcohol and tobacco. Cannabis businesses have arduous and expensive regulations that they have to follow or risk losing their license. Because of their additional costs, they have to charge customers more, thereby allowing a thriving illicit market to exist and compete with the legal market. In fact, a number of marijuana businesses have gone into bankruptcy. Due to all of these additional costs, it is a struggle for cannabis businesses to engage in more environmentally friendly practices and survive against competitors.

More and more states have been legalizing cannabis. With this growing nascent industry, numerous products will be made and eventually make its way to a waste receptacle. Whether it be the packaging or the product itself, the only questions are “how much waste” and “how will it be disposed.” The commercial states and future commercial states should provide tax cuts to businesses that enact environmentally friendly waste management procedures such as composting instead of landfills. States should also allow for the sale and give-away of cannabis waste if there is a practical and lawful use for it.

One licensee should handle packaging and labeling of marijuana products to prevent accumulated labeling. Plus, businesses should refrain from using exit packaging. Additionally, there should be limitations on the labeling for inherently small packages. Furthermore, the use of QR codes and information upon request are practical ways to give information. Finally, states should provide tax cuts to marijuana businesses that use recyclable materials for their packaging or composting methods for their waste.