

**ALL IS FOR THE BEST IN THE BEST OF ALL POSSIBLE
WORLDS:
THE UNNECESSARY ENVIRONMENTAL COSTS OF FEDERAL
CANNABIS PROHIBITION**

Chester Harper

Abstract

Many strong criticisms have been leveled against federal cannabis prohibition, including its lack of scientific basis, its origins in racial animus, the racial disparities in its enforcement, and the negative impact it continues to have across society. Recent scholarship has added a new argument to the list: cannabis prohibition is terrible for the environment. Both legal and illegal production is fraught with negative environmental externalities. Illegal production is damaging because it happens with no oversight. Legal production is damaging because the normal regulatory mechanisms intended to protect the environment and public health are federal and thus precluded from regulating the cannabis industry. Prohibition, consequently, has left regulation to state-level agencies which are ill-equipped for the task. Federal legalization offers the opportunity to mitigate these externalities by removing the market for illegal cannabis and effectively regulating a power- and water-intensive agricultural industry. With no realistic prospect of federal legalization in sight, however, the environmental impact of cannabis production in the U.S. remains an unnecessary cost of a failed policy. Nevertheless, the trend towards legalizing cannabis—both for medicinal and recreational use—continues globally, and states can benefit from the lessons of other countries unencumbered by a dysfunctional federal hierarchy.

Introduction	57
I. The Environmental Impact of Federal Cannabis Prohibition	58
A. The Environmental Legacy of Illegal Cannabis Production.....	59

1. Toxic Contamination on Public Lands	59
2. Physical Impact on Public Lands	60
3. The Role of Federal Prohibition	61
B. Potential Externalities of Legal Cannabis Production	61
1. Under-regulated Pesticide Use	61
2. Energy Use in Indoor Production	63
3. Water Use in Western States	63
II. Addressing The Issues	64
A. A Legal Argument for Descheduling Cannabis	64
1. The Legal Framework of the CSA	65
2. Accepted Medical Use	66
3. Potential for Abuse	68
B. Comparing Cannabis to Alcohol or Tobacco	69
1. Addictiveness and Impairment	69
2. Health Effects	70
III. The Cannabis Cultivation Act	71
A. Amending the CSA	71
1. Effect	72
2. International Considerations	72
B. Creating FDA Authority	74
C. Findings, Purpose, and State/Federal Cooperation	75
1. Federalism	77
2. Incentivization	79
D. Limiting Energy Use	81
E. Limiting Excessive Water Use	83
F. Personal Production	84
G. Medicinal Cannabis	86
H. The ATF and Crop Insurance	86
Conclusion	87

INTRODUCTION

The legal cannabis industry is poised to explode worldwide. Within the next decade, the global cannabis market is predicted to grow by over 500% as an increasing number of countries and U.S. states legalize cannabis for medicinal and recreational use.¹ However, even though demand and profitability have increased, the negative environmental externalities of the cannabis industry have become a growing source of concern.² The worries about the legal industry follow a long history of pre-legalization ecological damage from a time when most cannabis producers in the United States operated illicitly on public lands.³

Both before and after the current legalization movement, a unique issue has exacerbated the problem and impeded efforts to curtail the environmental damage of cannabis production: federal prohibition.⁴ Federal criminalization of cannabis pushed the industry underground and removed any incentive for growers to concern themselves with externalities.⁵ Furthermore, today, where cannabis production is legal in some form in over half of all states, federal agencies cannot fulfill their normal regulatory roles because cannabis remains a Schedule I controlled substance under the Controlled Substances Act.⁶ The result is that states have been left to their own devices for regulating the cannabis industry in a patchwork approach lacking the resources or expertise of federal agencies.⁷

This Note will look at the specific environmental problems that arise in the United States because of federal cannabis prohibition. Section I will look at the extensive environmental impact of both legal and illegal cannabis

1. See Thomas Pellechia, *Legal Cannabis Industry Poised for Big Growth, in North America and Around the World*, FORBES (Mar. 1, 2018), <https://www.forbes.com/sites/thomaspellechia/2018/03/01/double-digit-billions-puts-north-america-in-the-worldwide-cannabis-market-lead/#487229a56510> (noting North American cannabis purchases will increase from \$9.2 billion to \$47.3 billion within the next decade).

2. Gina S. Warren, *Regulating Pot to Save the Polar Bear: Energy and Climate Impacts of the Marijuana Industry*, 40 COLUM. J. ENVTL. L. 385, 401–02 (2015).

3. See Warren Eth, *Up in Smoke: Wholesale Marijuana Cultivation Within the National Parks and Forests, and the Accompanying Extensive Environment Damage*, 16 PENN ST. ENVTL. L. REV. 451, 452 (2008) (discussing environmental damage inflicted by illegal growing operations).

4. See Tiffany Stecker, *Federal Ban—and Anti-Pot EPA—Has States, Firms Scrambling*, BLOOMBERG LAW NEWS (July 20, 2017), <https://news.bloombergenvironment.com/environment-and-energy/federal-banand-anti-pot-epahas-states-firms-scrambling?context=article-related> (noting federal ban on marijuana cultivation).

5. See Eth, *supra* note 3, at 467–68 (noting that federal ban encouraged seclusion).

6. Controlled Substances Act, 21 U.S.C. § 812(c); see also Schedule of Controlled Substances, 21 C.F.R. § 1308.11 (2018) (listing cannabis as a Schedule I substance); see, e.g., COLO. DEP'T OF AGRIC., *FACTUAL AND POLICY ISSUES RELATED TO THE USE OF PESTICIDES ON CANNABIS* (2016) (noting EPA cannot regulate pesticides on cannabis because cannabis is not an herb, spice, or vegetable).

7. COLO. DEP'T OF AGRIC., *supra* note 6.

production and efforts made by states to ameliorate this impact, including state-level legalization. Section II will look at federal obstruction of cannabis-related state environmental policies. These issues include the inability of the Environmental Protection Agency (EPA) to engage in research or recommend pesticides suitable for cannabis production and limitations on states to create their own regulations because of field preemption. Finally, Section III will present an original piece of proposed legislation named the Cannabis Cultivation Act. Drawing on the issues identified in the first part of this work, the provisions of the Cannabis Cultivation Act offer a comprehensive, state-centered, federal regulatory scheme designed to mitigate or resolve the cannabis industries externalities.⁸

I. THE ENVIRONMENTAL IMPACT OF FEDERAL CANNABIS PROHIBITION

Federal cannabis prohibition in the United States began with the Marihuana Tax Act of 1937 but came into full form with the Controlled Substances Act of 1971 (CSA).⁹ The aggregate effect of prohibition has been to drive the use, production, and sale of cannabis underground but not to limit demand.¹⁰ According to the Substance Abuse and Mental Health Services Administration, approximately 24 million Americans over the age of 12 were current cannabis users in 2016, which is more users than all other illicit drugs combined.¹¹ The impact of prohibition on criminal justice and public policy has been well-documented and has formed a cornerstone for state-level initiatives to legalize cannabis.¹² One topic that is only now gaining traction is the environmental impact of cannabis production, both legal and illegal.¹³

8. The Cannabis Cultivation Act is original to this Note.

9. Marihuana Tax Act of 1937, 50 Stat. 551; 21 U.S.C. §§ 801-889.

10. See generally REBECCA AHRNSBRAK ET AL., SUBSTANCE ABUSE AND MENTAL HEALTH SERVS. ADMIN., KEY SUBSTANCE USE INDICATORS IN THE UNITED STATES 1 (2017) (discussing the historic increase of cannabis usage in the United States).

11. *Id.* at 15.

12. See generally AM. C. L. UNION, THE WAR ON MARIJUANA IN BLACK AND WHITE (2013) (examining the enormous expense of the war on cannabis and the fundamentally biased effect it has had on minority communities in the United States).

13. See generally Madison Park, *Use of Federal Lands for Illegal Pot a Growing Concern, California Officials Say*, CNN (May 30, 2018), <https://www.cnn.com/2018/05/30/us/california-illegal-marijuana-federal-lands/index.html> (discussing the illegal environmental impact of cannabis production); Vince Palace, *We Must Study Marijuana's Impact on the Environment Before It's Too Late*, GUARDIAN (Dec. 4, 2018), <https://www.theguardian.com/commentisfree/2018/dec/04/canada-marijuana-legalization-environment-impact> (discussing the legal environmental impact of cannabis production); Clayton Aldern, *Everything You Need to Know About Pot's Environmental Impact*, GRIST (Apr. 19, 2016), <https://grist.org/living/everything-you-need-to-know-about-pots-environmental-impact/> (discussing the legal and illegal environmental impacts of cannabis production).

A. The Environmental Legacy of Illegal Cannabis Production

Illegal production in particular has created lingering ecological issues. By prohibiting legal, regulated cannabis production, the federal government has created a thriving black market marked by indifference to the externalities of grow operations.¹⁴ Furthermore, illicit growers—who are increasingly associated with foreign drug trafficking organizations—have been moving into remote areas of U.S. National Forests and other public lands to avoid authorities.¹⁵ This move has left severe and lingering ecological damage in its wake.¹⁶

1. Toxic Contamination on Public Lands

The federal government has long been aware of the staggering environmental damages caused by illegal grow operations on U.S. public lands.¹⁷ In 2011, a report by the U.S. Senate Caucus on International Narcotics Control reported domestic production in 20 states and 67 National Forests; between 2006 and 2011, 13,843,937 plants were destroyed on public lands during drug enforcement operations.¹⁸ While the authorities' main focus was destroying the illicit product, the operations also uncovered substantial damage and contamination in the surrounding areas.¹⁹ Operation Full Court Press, a focal point of the Caucus report, seized more than \$800 million worth of illegally grown cannabis in northern California and resulted in 159 arrests.²⁰ Moreover, the agents found 5,400 pounds of fertilizer, 260 pounds of pesticides, and 26 tons of trash at the grow sites.²¹

Environmental damage from illegal cannabis production comes in a number of forms. Unregulated use of pesticides can contaminate soil and

14. See Eth, *supra* note 3, at 471–72 (noting environmental harms of illegal growing operations).

15. *Id.* at 469.

16. *Id.* at 470.

17. See, e.g., *Marijuana Cultivation on U.S. Public Lands: U.S. Senate Caucus on Int'l Narcotics Control*, 112th Cong. 1 (2011) (statement of Sen. Dianne Feinstein, Chairman and Sen. Charles E. Grassley, Co-Chairman, U.S. Senate Caucus on Int'l Narcotics Control) (noting presence and impacts of grow operations in National Forests).

18. *Id.*

19. *Marijuana Cultivation on U.S. Public Lands: U.S. Senate Caucus on Int'l Narcotics Control*, 112th Cong. 1 (2011) (statement of Dir. R. Gil Kerlikowske, U.S. Senate Caucus on Int'l Narcotics Control).

20. *Marijuana Cultivation on U.S. Public Lands: U.S. Senate Caucus on Int'l Narcotics Control*, 112th Cong. 1 (2011) (statement of Cong. Mike Thompson, U.S. Senate Caucus on Int'l Narcotics Control).

21. *Id.*

waterways, as well as cause secondary exposure to wildlife.²² One report characterizes the pesticide contamination at these sites as “more akin to leaking chemical weapon stockpiles than typical use or misuse of agricultural products[.]”²³ Forestry officials believe that secondary exposure to wildlife from rodenticide and insecticide toxicants has played a significant role in the population decline of many endangered species in the region.²⁴ Illegal operations on public lands are often operated by foreign drug-trafficking organizations, who often use highly toxic pesticide compounds that are banned in the United States.²⁵

2. Physical Impact on Public Lands

Beyond toxic contamination, illegal grow operations damage the physical land itself. Growers often clear-cut grow sites and terrace land to make it more suitable for production, which can lead to erosion and altered watersheds from increased sedimentation.²⁶ Research has also shown that diverting water for irrigating cannabis crops has caused a substantial reduction of surface-water levels in the drought-stricken West.²⁷

The abundance of dry fuel from clearing land also increases the risk of wildfires. Officials attribute the 2009 La Brea Fire in southern California, which destroyed more than 89,000 acres of chaparral, to a cooking fire at a cartel-operated grow site.²⁸ The Department of the Interior estimates that the cost to clean up and restore grow sites is between \$14,900 and \$17,000 per acre.²⁹

22. Craig M. Thompson et al., *Impacts of Rodenticide and Insecticide Toxicants From Marijuana Cultivation Sites on Fisher Survival Rates in the Sierra National Forest, California*, 7 CONSERVATION LETTERS 91, 91 (2013).

23. *Id.* at 97.

24. *Id.* at 92.

25. *Exploring the Problem of Domestic Marijuana Cultivation: Hearing Before Senate Caucus on International Narcotics Control*, 112th Cong. 4 (2011) (statement of R. Gil Kerlikowske, Director, Office of National Drug Control Policy).

26. *Id.* at 4–5.

27. Alastair Bland, *California's Pot Farms Could Leave Salmon Runs Truly Smoked*, NPR (Jan. 13, 2014), <https://www.npr.org/sections/thesalt/2014/01/08/260788863/californias-pot-farms-could-leave-salmon-runs-truly-smoked>.

28. Steve Gorman, *Mexican Drug Smugglers Tied to California Fire*, REUTERS (Aug. 17, 2009), <https://www.reuters.com/article/us-wildfire-marijuana/mexican-drug-smugglers-tied-to-california-fire-idUSTRE57G4SB20090818>.

29. Kerlikowske, *supra* note 25, at 5.

3. The Role of Federal Prohibition

In every way, the environmental damage from illegal cannabis production was avoidable from the beginning because none of the externalities are particular to the product. Rather, these consequences are a result of unaccountable growers operating in remote locations with no reason to prioritize anything but secrecy and profit. The ecological benefits of bringing cannabis production out of the shadows have become a common speaking point for environmentally minded legalization advocates.³⁰ As one supporter succinctly states: “If marijuana were regulated like tobacco, nobody would be growing marijuana in our forests. With legalization, licensed marijuana farms would put cartel operations out of business.”³¹

B. Potential Externalities of Legal Cannabis Production

Legalization poses its own environmental issues. Specifically, the legal cannabis industry has three major environmental externalities of concern: (1) lacking EPA oversight, states have struggled to advise and regulate cultivators on appropriate pesticides for their crops;³² (2) because of the need for high-powered grow lights and air circulations systems, indoor cannabis production is extremely energy-intensive with a correspondingly large carbon footprint,³³ and, (3) cannabis production requires large amounts of water, which has exacerbated droughts in states already experiencing water shortages.³⁴

1. Under-regulated Pesticide Use

Like all commercial plant growers, cannabis cultivators rely on pesticides to protect their crops, but regulatory inaction has left these cultivators dangerously ill-informed. Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the EPA has sole authority to

30. Rick Fairbanks, *Decriminalizing Marijuana Would Protect National Forests*, CAP. PRESS (Oct. 28, 2014), <http://www.capitalpress.com/Opinion/Columns/20141028/decriminalizing-marijuana-would-protect-national-forests>.

31. *Id.*

32. Bart Schaneman, *Mandatory Testing Costly for Colorado Marijuana Growers*, DENV. POST (Aug. 26, 2018), <https://www.denverpost.com/2018/08/26/colorado-marijuana-mandatory-pesticide-testing/>.

33. Evan Mills, *The Carbon Footprint of Indoor Cannabis Production*, 46 ENERGY POL’Y 58, 59 (2012).

34. Jennifer K. Carah et al., *High Time for Conservation: Adding the Environment to the Debate on Marijuana Liberalization*, 65 BIOSCIENCE 822, 823 (2015).

regulate pesticide use in the United States.³⁵ However, because THC is a Schedule I controlled substance under the CSA, the EPA cannot opine on appropriate pesticide use for cannabis.³⁶

This situation has left states to fill an unfamiliar role in advising cultivators, with mixed results.³⁷ This compromise itself violates federal law because FIFRA requires that all pesticides be registered and approved by the EPA and prohibits the use of pesticides for any purpose inconsistent with their EPA-approved labeling.³⁸ It is, therefore, against federal law to use any pest-control product on cannabis.³⁹

The logic behind this rule is fundamentally sound because the active ingredients of some pesticide can behave in unexpected ways. Myclobutanil, for example, is an active ingredient in 50 EPA-approved pesticides commonly used on flowering or fruit-producing plants.⁴⁰ However, when exposed to extreme heat—such as an open flame—myclobutanil produces cyanide gas, making it potentially deadly to use on a smokable product.⁴¹ With state-legal cannabis production growing exponentially, the EPA's forced abdication of their normal regulatory role has already caused unnecessary public health scares and product recalls.⁴²

35. Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136(b), 136a (2018).

36. Controlled Substances Act, 21 U.S.C. § 812(c) (2018); *see also* Schedule of Controlled Substances, 21 C.F.R. § 1308.11 (2018) (listing cannabis as a Schedule I substance); COLO. DEP'T OF AGRIC., *supra* note 6 (noting EPA could not identify which pesticides may be applied to cannabis).

37. *See, e.g.*, Dan Adams, *Marijuana Dispensary Slams State for Pesticide Bust*, BOST. GLOBE (Sept. 13, 2018), <https://www.bostonglobe.com/metro/2018/09/12/marijuana-dispensary-slams-state-for-pesticide-bust/F6PMOmtj10WEfaTr0sWo3O/story.html> (noting Massachusetts Department of Public Health ordered grow operation to close).

38. 7 U.S.C. §§ 136a(a), 136j(a)(2)(G).

39. Jenna Hardisty Bishop, Note, *Weeding the Garden of Pesticide Regulation: When the Marijuana Industry Goes Unchecked*, 65 DRAKE L. REV. 223, 226 (2017).

40. U.S. ENVTL. PROT. AGENCY, *Chemical Name: Myclobutanil*, https://iaspub.epa.gov/apex/pesticides/f?p=113:6:::NO::P6_XCHEMICAL_ID:2934 (last visited Aug. 10, 2019).

41. *See* Joel Warner, *Marijuana Legalization 2015: EPA Issues Guidance on Marijuana Pesticides Amid Industry Uncertainty*, INT'L BUS. TIMES (June 9, 2015), <https://www.ibtimes.com/marijuana-legalization-2015-epa-issues-guidance-marijuana-pesticides-amid-industry-1959030> (noting risk of exposure); Conor Ferguson et al., *Tests Show Bootleg Marijuana Vapes Tainted with Hydrogen Cyanide*, NBC NEWS (Sept. 27, 2019), <https://www.nbcnews.com/health/vaping/tests-show-bootleg-marijuana-vapes-tainted-hydrogen-cyanide-n1059356> (noting myclobutanil can transform to hydrogen cyanide when burned).

42. *See* David Migoya & Ricardo Baca, *Hickenlooper Issues Executive Order to Declare Tainted Pot a Threat to Public*, DENV. POST (Nov. 12, 2015), <https://www.denverpost.com/2015/11/12/hickenlooper-issues-executive-order-to-declare-tainted-pot-a-threat-to-public/> (noting that Governor had to issue order that marijuana grown with unapproved pesticides is a threat); Bob Young, *Pot Products Recalled for Pesticides in Colorado, but Not in Washington*, SEATTLE TIMES (Feb. 12, 2016), <https://www.seattletimes.com/seattle-news/marijuana/pot-products-recalled-in-colorado-for-pesticides-but-not-in-washington/> (noting gap in research for safe pesticides due to EPA's absence); Joseph Misulonas, *Cannabis Company Shut Down for Using Dangerous Pesticides on Products*, CIVILIZED (Dec. 17, 2018),

2. Energy Use in Indoor Production

Energy usage is a major source for concern particular to indoor cannabis production. Large-scale indoor production began as a way for illicit growers to hide their operations.⁴³ Nevertheless, even in legal states, indoor grows appeal to cultivators for their higher yields, year-round cultivation, greater control of the product, as a secondary method of pest control, and, most importantly, because they are easily secured against casual theft.⁴⁴ Indoor production is highly energy intensive, however.⁴⁵ One study estimated that the total amount of electricity used by the United States in indoor cannabis production in 2012 was approximately 20 TW/h.⁴⁶ “This is equivalent to that of 2 million average U.S. homes, corresponding to approximately 1% of national electricity consumption . . . with associated emissions of 15 million metric tons of CO₂—equivalent to that of 3 million average American cars.”⁴⁷ With such intense energy demands, the proliferation of indoor production in the legal cannabis industry poses a substantial risk of worsening the effects of climate change if left unregulated.

3. Water Use in Western States

On a more local level, water usage is another issue with the cannabis industry because cannabis, whether grown indoors or outdoors, is a prodigiously thirsty plant.⁴⁸ One study estimates that a single cannabis plant consumes an average of 22.7 liters (approximately 6 U.S. gallons) of water per day.⁴⁹ Another study estimated that cannabis grown outdoors consumes upwards of 430 million liters of water, per cultivated square kilometer, per growing season.⁵⁰ By comparison, grapes utilize just 271 million liters of water, per cultivated square kilometer, per growing season.⁵¹ A shortage of

<https://www.civilized.life/articles/cannabis-company-shut-down-dangerous-pesticides/> (noting state shut down cannabis company due to improper pesticide use).

43. *Exploring the Problem of Domestic Marijuana Cultivation: Hearing Before Senate Caucus on International Narcotics Control*, 112th Cong. 4 (2011) (statement of R. Gil Kerlikowske, Director, Office of National Drug Control Policy).

44. Mills, *supra* note 33, at 58; Patrick Cain, *As Harvest Nears, Thieves Plague Cannabis Home Growers*, GLOB. NEWS (Sept. 27, 2019), <https://globalnews.ca/news/5943686/cannabis-home-grow-theft-plant/>.

45. Mills, *supra* note 33, at 58.

46. *Id.* at 59.

47. *Id.*

48. Carah, *supra* note 34, at 823.

49. Scott Bauer et al., *Impacts of Surface Water Diversions for Marijuana Cultivation on Aquatic Habitat in Four Northwestern California Watersheds*, PLOS ONE, Mar. 18, 2015, at 8.

50. Carah, *supra* note 34, at 823.

51. *Id.*

water for agricultural use is already a major issue in many water-poor western states which has drawn the attention of state and national lawmakers.⁵² Any expansion of the water-intensive cannabis industry would only exacerbate these localized problems.

II. ADDRESSING THE ISSUES

The preceding section detailed the four main ecological impacts of cannabis production: (1) environmental degradation from illegal grow operations; (2) under-regulation of pesticides because of EPA inaction; (3) excessive water use in states with limited water resources; and (4) excessive energy use from indoor production. As discussed, the first three of these issues exist solely because of federal prohibition, and the fourth is exacerbated and perpetuated because of it. The following section will present a legal argument for removing cannabis from the CSA's list of controlled substances.

A. A Legal Argument for Descheduling Cannabis

Since the passage of the Marihuana Tax Act, the federal government has deemed the costs of prohibition to be an acceptable exchange for eradicating the scourge of cannabis.⁵³ The 81-year history of prohibition, however, has made continued belief in that value judgment increasingly indefensible.⁵⁴ With states and foreign countries joining the global trend towards legalization, the United States federal government risks becoming increasingly isolated in its attempts to justify the human, economic, and environmental impacts of the policy.⁵⁵

The core document sustaining federal cannabis prohibition in the United States is the Controlled Substances Act of 1971.⁵⁶ Under the CSA, Cannabis

52. Ryan Sabalow & Dale Kasler, *The Drought is Over. Why are Republicans in Congress Fighting for More Water for Farmers?*, SACRAMENTO BEE (July 20, 2017), <https://www.sacbee.com/news/state/california/water-and-drought/article162696018.html>.

53. See German Lopez, *Jeff Sessions: Marijuana Helped Cause the Opioid Epidemic. The Research: No.*, VOX (Feb. 8, 2018), <https://www.vox.com/policy-and-politics/2018/2/8/16987126/jeff-sessions-opioid-epidemic-marijuana> (noting belief that heroin addictions start with marijuana).

54. Matthew Routh, *Re-Thinking Liberty: Cannabis Production and Substantive Due Process*, 26 KAN. L.J. & PUB. POL'Y, 143, 167 (2017) (noting the disproportion in cannabis arrests compared with racial demographics).

55. See Nick Kavacevich, *Cannabis Goes Global While U.S. Falls Behind*, FORBES (Nov. 16, 2018), <https://www.forbes.com/sites/nickkovacevich/2018/11/16/cannabis-goes-global-while-the-u-s-falls-behind/#3fe688641783> (noting that U.S. companies unable to join first wave of global cannabis market).

56. *Gonzales v. Raich*, 545 U.S. 1, 13–14 (2005) (explaining that the CSA is the ultimate source of federal cannabis control).

is classified as a Schedule I narcotic, which means that the government has determined that the substance has high potential for abuse and no legitimate uses.⁵⁷ Other substances listed in Schedule I include Heroin, Quaaludes, and LSD.⁵⁸

1. The Legal Framework of the CSA

For legalization advocates, one of the most frustrating elements of cannabis prohibition is that cannabis should not be a Schedule I substance by the letter of the CSA.⁵⁹ Section 812 of the CSA details the criteria by which the Attorney General (AG) is required to assess substances for inclusion on the list of scheduled substances.⁶⁰ Factors include potential for abuse and addiction, accepted medical uses, the current state of scientific and medical knowledge about the substance, and current abuse patterns.⁶¹ The specific factors for inclusion in Schedule I are: (1) the substance has high potential for abuse; (2) the U.S. medical community has no currently accepted use for the substance; and (3) the substance cannot be used safely even under medical supervision.⁶² Schedules I and II are differentiated only in that Schedule II substances have recognized medical uses and may be prescribed, but still require close supervision by a medical professional.⁶³ Examples of Schedule II substances are cocaine, amphetamine, methamphetamine, fentanyl, oxycodone, and phencyclidine (PCP).⁶⁴ The thresholds for Schedules III-V are moving targets, defined as relatively less addictive or dangerous than the substances in the preceding Schedule.⁶⁵

Fortunately, the CSA includes provisions for scheduling, rescheduling, or descheduling a substance.⁶⁶ Section 811(a) and (b) authorize the U.S. AG to add substances if they have a potential for abuse or remove substances if “he finds that the drug or other substance does not meet the requirements for inclusion in any schedule.”⁶⁷ The process follows the normal rulemaking

57. Controlled Substances Act, 21 U.S.C. § 812 (2018); *see also* Schedule of Controlled Substances, 21 C.F.R. § 1308.11 (2018) (listing cannabis as a Schedule I substance).

58. 21 U.S.C. § 812(c).

59. Tom Angell, *Senate Committee Slams Marijuana's Federal Classification, Saying Schedule I Blocks Research*, FORBES (July 3, 2018), <https://www.forbes.com/sites/tomangell/2018/07/03/senate-committee-slams-marijuanas-federal-classification-saying-schedule-i-blocks-research/>.

60. 21 U.S.C. § 812(b).

61. *Id.* § 811(b).

62. *Id.* § 812(b)(1).

63. *Id.* § 812(b)(2).

64. *Id.* § 812(c).

65. *Id.* § 812(b)(3)–(5).

66. *Id.* § 811.

67. *Id.* § 811(a)–(b).

procedure of the Administrative Procedure Act.⁶⁸ The AG, the Secretary of Health and Human Services (HHS Secretary), or any interested member of the public may initiate proceedings.⁶⁹ The CSA puts the burden onto the HHS Secretary to produce a scientific and medical evaluation and make a binding recommendation which the AG must implement.⁷⁰

2. Accepted Medical Use

Despite the federal government's decades-long effort to stifle scientific studies of cannabis, today there is ample empirical evidence that cannabis fits none of the Schedule I criteria.⁷¹ Indeed, U.S. officials have long acknowledged this fact.⁷² As early as 1988, Administrative Law Judge Francis Young reviewed a petition by the National Organization for the Reform of Marijuana Laws (NORML) to reschedule cannabis to Schedule II.⁷³ This petition had been working its way through the courts since 1972.⁷⁴ Judge Young held that the provisions of the CSA both permit and require removing cannabis from Schedule I.⁷⁵ Judge Young cited the testimony of dozens of physicians—mostly oncologists—who used cannabis medically to show that the medical community had accepted medical uses for cannabis, and that cannabis could be used safely under medical supervision.⁷⁶ The DEA Administrator rejected the opinion, flippantly arguing that Judge Young's findings lacked scientific credibility.⁷⁷ This response ignores the fact that an accepted medical use is determined by the medical community, not by a federal agency.⁷⁸

68. *Id.* § 811(a) (“Rules of the Attorney General under this subsection shall be made on the record after opportunity for a hearing pursuant to the rulemaking procedures prescribed by subchapter II of chapter 5 of title 5.”); Administrative Procedure Act, 5 U.S.C. §§ 551–59 (2018); *see generally* TODD GARVEY, CONG. RESEARCH SERV., R41546, A BRIEF OVERVIEW OF RULEMAKING AND JUDICIAL REVIEW 2 (2017) (summarizing the APA informal rulemaking procedure of publication of proposed rules, accepting public comment, and promulgating final rules).

69. 21 U.S.C. § 811(a).

70. *Id.* § 811(b).

71. *See* Dirk W. Lachenmeier & Jürgen Rehm, *Comparative Risk Assessment of Alcohol, Tobacco, Cannabis and Other Illicit Drugs Using the Margin of Exposure Approach*, SCI. REP., Jan. 30, 2015, at 4 (comparing the relative toxicity risk of commonly-used recreational substances and concluding that cannabis poses almost no risk of acute toxicity); *see* Guillermo Velasco, et al., *Towards the Use of Cannabinoids as Antitumour Agents*, 12 NAT. REV. CANCER 436–44 (2012) (concluding that cannabinoids reduce tumor growth and progression in animal models).

72. *See* Marijuana Rescheduling Petition, DEA Docket No. 86-22 at 25-26, 29 (Sept. 6, 1988) (discussing whether marijuana fits into schedule II with regards to its medical use).

73. *Id.* at 1.

74. *Id.*

75. *Id.* at 67.

76. *Id.*

77. *See* *Seeley v. State*, 940 P.2d 604, 614 (Wash. 1997).

78. Marijuana Rescheduling Petition, *supra* note 72, at 27.

It is not for this Agency to tell doctors whether they should or should not accept a drug or substance for medical use. The statute directs the Administrator merely to ascertain whether, in fact, doctors have done so The DEA . . . is charged by 21 U.S.C. § 812(b)(1)(B) and (2)(B) with ascertaining what it is that the other people have done with respect to a drug or substance: “Have they accepted it? not “Should they accept it?”⁷⁹

Judge Young notes, with support, that requiring universal or majority acceptance amongst the medical community to find an “accepted medical use” would be unrealistic and inconsistent with how the medical community operates.⁸⁰ Rather, acceptance “by a ‘respectable minority’ of physicians is all that can reasonably be required.”⁸¹

Though not without controversy, today, the United States medical community has fully acknowledged some of the medical uses of cannabis.⁸² In 2016, the American Medical Association (AMA) acknowledged cannabis has therapeutic benefits for neuropathic and chronic pain management, multiple sclerosis associated spasticity, antiemesis, and loss of appetite.⁸³ While not going so far as to endorse legalization, the AMA also revoked their official stance that cannabis should not be legalized and the language that cannabis “has no scientifically proven, currently accepted medical use for preventing or treating any disease process in the United States.”⁸⁴ Although statistics are hard to come by, the Marijuana Policy Institute currently estimates that there are 3,099,934 state-sanctioned medical cannabis users in the United States.⁸⁵ The FDA has also approved the use of dronabinol, a THC-based cannabis extract for antiemetic treatments.⁸⁶ Perhaps most damningly, the United States itself has owned a patent on the use of cannabinoids as antioxidants and neuroprotectants since 2001, all while

79. *Id.* at 32 (emphasis in original).

80. *Id.* at 29.

81. *Id.*

82. See AM. MED. ASS’N HOUSE OF DELEGATES, CLINICAL IMPLICATION AND POLICY CONSIDERATIONS OF CANNABIS USE I (Sept. 12, 2016) (acknowledging potential positive clinical uses of cannabis).

83. *Id.* at 1–2.

84. *Id.* at 2–3.

85. *Medical Marijuana Patient Numbers*, MARIJUANA POL’Y PROJECT, <https://www.mpp.org/issues/medical-marijuana/state-by-state-medical-marijuana-laws/medical-marijuana-patient-numbers/> (last visited Sept. 25, 2019) (noting that the largest concentrations of users are in California (1,238,136), Michigan (284,088), and Florida (240,070); Oklahoma has the highest per-capita rate (3.71%)).

86. U.S. FOOD & DRUG ADMIN., HIGHLIGHTS OF PRESCRIBING INFORMATION (2017).

maintaining an enforcement policy explicitly predicated on the determination that cannabis has no medicinal value.⁸⁷

3. Potential for Abuse

Despite how central it is to the CSA, “potential for abuse” is surprisingly ill-defined.⁸⁸ The CSA’s only effort to explain the term is a provision which creates a rebuttable presumption that any substance with “a stimulant, depressant, or hallucinogenic effect on the central nervous system” has a potential for abuse.⁸⁹ On its own, this definition is unworkably broad because it would encompass many commonly consumed substances such as caffeine and chocolate.⁹⁰ Federal courts have generally deferred to agency rulemaking regarding potential for abuse without addressing the underlying definition.⁹¹

Legislative debate during the passage of the CSA discussed potential for abuse as “a substantial potential for the occurrence of significant diversions from legitimate channels, significant use by individuals contrary to professional advice, or substantial capability of creating hazards to the health of the user or the safety of the community.”⁹² Proponents admitted that they did not have good means to measure the current scope of drug abuse, but cited arrests for drug charges and any use of an illicit substance as significant indicators.⁹³ These criteria are circular, however, because the scale of “abuse” is determined by the state of the law, rather than the substance in question. By this definition of abuse, if the government were to schedule coffee as a controlled substance it would instantaneously become the most dangerous drug in the world, simply because it is widely used and illegal. Other than these meta indicators, the only empirical factor considered in the legislative history was potential for physical and psychological dependency.⁹⁴ Therefore, the only reasonable standard to judge “potential for

87. U.S. Patent No. 6,630,507 (filed Apr. 21, 1999).

88. See Controlled Substances Act, 21 U.S.C. § 812(b)(1)–(5) (2018) (using, but not defining “potential for abuse”); see also *id.* § 802 (failing to define “potential for abuse”).

89. *Id.* § 811(f).

90. See Christina Jayson, *Caffeine vs. Chocolate: A Mighty Methyl Group*, SCI. & FOOD (Sept. 29, 2015) <https://scienceandfooducla.wordpress.com/2015/09/29/caffeine-vs-chocolate-a-mighty-methyl-group/> (describing effects of chocolate and caffeine on nervous system).

91. See *Grinspoon v. Drug Enf’t Admin.*, 828 F.2d 881, 893 (1st Cir. 1987) (holding that the DEA’s finding of any potential for abuse was sufficient for the court to uphold the agency’s inclusion of the substance on the CSA’s Schedules); *Nat’l Org. for Reform of Marijuana Laws v. Bell*, 488 F Supp. 123, 140–41 (D.C. Cir. 1980) (holding that cannabis has a potential for abuse because Congress determined that it did, regardless of evidence to the contrary).

92. H.R. REP. NO. 91-1444, at 9 (1970), *reprinted in* 1970 U.S.C.C.A.N. 4566, 4602.

93. *Id.* at 4572.

94. *Id.* at 4573.

abuse” is the potential to produce dependence and related behaviors in users.⁹⁵

Current consensus in the literature on the subject places the lifetime risk of dependence for cannabis users at around 9%, compared to 23% for heroin users and 17% for Cocaine users.⁹⁶ By comparison, alcohol and nicotine—legal recreational substances which are expressly excluded from CSA control—have a lifetime dependency risk of 15% and 32% respectively.⁹⁷ Given this rate and the medical community’s acknowledgment of valid medical uses, cannabis should be moved to Schedule III, if not lower, because it has accepted, safe medical uses (thereby excluding it from Schedule I), and it has approximately half the potential for abuse of cocaine (a Schedule II narcotic).⁹⁸

B. Comparing Cannabis to Alcohol or Tobacco

A significant issue with rescheduling cannabis is that the CSA only considers medical use.⁹⁹ Even Schedule V substances—the lowest tier of control which includes products such as codeine cough syrup—may only be dispensed for medical purposes.¹⁰⁰ For this reason, the CSA explicitly excludes tobacco and alcohol as generally accepted recreational substances.¹⁰¹ The preponderance of evidence suggests that cannabis should be in the same category as these substances rather than in any CSA Schedule.

1. Addictiveness and Impairment

As discussed above, alcohol and tobacco use are respectively 166% and 355% more likely to result in dependence than cannabis.¹⁰² Researchers have also found that cannabis is, in general, far less impairing than alcohol.¹⁰³ One study testing driving under the influence of cannabis found that “most marijuana-intoxicated drivers show only modest impairments on actual road

95. *Id.* at 4601.

96. J. Michael Bostwick, *Blurred Boundaries: The Therapeutics and Politics of Medical Marijuana*, 87 MAYO CLINIC PROCEEDINGS 172, 179 (2012).

97. *Id.*

98. Routh, *supra* note 54, at 171–72 (discussing the medical benefits of cannabis).

99. See Controlled Substances Act, 21 U.S.C. § 829 (2018) (describing medical use as means of scheduling); *id.* § 812 (listing medical use as consideration).

100. *Id.* § 829(c); see *id.* § 812(c) (listing low doses of codeine as Schedule V substance).

101. *Id.* § 802(6).

102. Bostwick, *supra* note 96, at 175.

103. R. Andrew Sewell et al., *The Effect of Cannabis Compared with Alcohol on Driving*, 18 AM. J. ADDICTION 185, 186, 189-90 (2009).

tests.”¹⁰⁴ The study also found that “[e]xperienced smokers who drive on a set course show almost no functional impairment under the influence of marijuana, except when it is combined with alcohol.”¹⁰⁵ The study theorized that the reason for this discrepancy is that cannabis intoxication does not produce the same errors of judgment common to alcohol intoxication, although cannabis does impair cognitive functions generally.¹⁰⁶

[G]iven a dose of 7 mg THC (about a third of a joint), drivers rated themselves as impaired even though their driving performance was not; in contrast, at a BAC 0.04% (slightly less than two “standard drinks” of a can of beer or small 5 oz. glass of wine; half the legal limit in most US states), driving performance was impaired even though drivers rated themselves as unimpaired.¹⁰⁷

2. Health Effects

In addition to being less addictive than either tobacco or alcohol and less impairing than alcohol alone, cannabis also does less damage to users’ health.¹⁰⁸ The Center for Disease Control and Prevention rates tobacco use as the leading preventable cause of death in the United States today with approximately 480,000 related deaths per year.¹⁰⁹ Alcohol causes approximately 90,000 deaths per year in the United States.¹¹⁰ Aggregate studies have not found any increase in all-cause mortality amongst cannabis users but admit the need for further long-term studies.¹¹¹ Of the 90,000 deaths per year related to alcohol, approximately 2,200 deaths result from acute

104. *Id.* at 186.

105. *Id.* (emphasis omitted) (citations omitted).

106. *Id.* at 186, 189.

107. *Id.*

108. See Erin Browdin, *Which is Worse for Your Health, Marijuana or Alcohol? Here’s the Science*, SCI. ALERT (June 21, 2018), <https://www.sciencealert.com/marijuana-weed-or-alcohol-health-impact-science-evidence-2018> (noting marijuana has no documented deaths and is less addictive than alcohol); Leland Kim, *Marijuana Shown to be Less Damaging to Lungs than Tobacco*, UNIV. CAL. S. F. (Jan. 10, 2012), <https://www.ucsf.edu/news/2012/01/98519/marijuana-shown-be-less-damaging-lungs-tobacco> (noting marijuana less damaging than tobacco); CTR. FOR DISEASE CONTROL & PREVENTION, NATIONAL HEALTH REPORT HIGHLIGHTS 8 (2017) (showing smoking tobacco as the leading cause of disease and death in the U.S.); CTR. FOR DISEASE CONTROL & PREVENTION, ALCOHOL USE AND YOUR HEALTH (2018) (showing health effects of alcohol).

109. CTR. FOR DISEASE CONTROL & PREVENTION, NATIONAL HEALTH REPORT HIGHLIGHTS 8 (2017).

110. CTR. FOR DISEASE CONTROL & PREVENTION, ALCOHOL USE AND YOUR HEALTH (2018).

111. See generally Bianca Calabaria et al., *Does Cannabis Use Increase the Risk of Death? Systematic Review of Epidemiological Evidence on Adverse Effects of Cannabis Use*, 29 DRUG & ALCOHOL REV. 318, 323 (2010) (summarizing the available research and concluding that there is insufficient evidence that cannabis use alone increases the risk of premature death).

alcohol poisoning.¹¹² Not only is there no recorded instance of a cannabis-induced death, Judge Young cited studies that theorized an adult would need to consume the equivalent of 20,000–40,000 cannabis cigarettes within 15 minutes to produce a fatal level of THC toxicity.¹¹³

Considering the addictiveness, impairment, and health effects of cannabis compared to those of alcohol and tobacco, there is no justification to wholly ban cannabis as a dangerous narcotic while alcohol and tobacco remain freely available and widely used. For this reason, cannabis should receive the same exemption from CSA control.

III. THE CANNABIS CULTIVATION ACT

In the following pages, this Note will present an annotated piece of proposed legislation called the “Cannabis Cultivation Act.” The primary aim of the legislation is to utilize the evidenced presented above to craft a comprehensive regulatory scheme to address the major externalities of a legal cannabis industry. Furthermore, building on the above analysis of the federal classification of cannabis, this legislation amends the CSA to end the legal force of federal cannabis prohibition. The legislation will also address several other regulatory concerns tangential to cannabis legalization. Each section will be accompanied by commentary which explains the analysis, standards, and precedent for the bill’s provisions.¹¹⁴

Proposed: An ACT to amend the Chapters 9 and 13 of Title 21 of the United States Code to end federal cannabis prohibition in the United States, to provide the Department of Agriculture with the authority to effectively regulate the cultivation of cannabis in the interest of the public and environmental health of the country, and for other purposes.

A. Amending the CSA

Section A. 21 U.S.C. § 802 (6) is amended to read:

21 U.S.C. § 802 – Definitions

(6) The term “controlled substance” means a drug or other substance, or immediate precursor, included in schedule I, II, III, IV, or V of part B of this subchapter. The term does not include distilled spirits, wine, malt

112. *Alcohol Poisoning Deaths*, CTR. FOR DISEASE CONTROL, <https://www.cdc.gov/vitalsigns/alcohol-poisoning-deaths/index.html> (last updated Jan. 6, 2015).

113. Marijuana Rescheduling Petition, *supra* note 72, at 57.

114. In this section, light grey text is the language of the proposed bill. ~~Strikethrough~~ text is language that would be eliminated from existing statutes, and underline text is a proposed addition.

beverages, ~~or~~ tobacco, or cannabis or cannabis-derived products, as those terms are defined or used in subtitle E of the Internal Revenue Code of 1986.

1. Effect

Amending § 802 of the CSA would effectively end federal cannabis prohibition. On its own, this section would reduce or resolve two of the identified environmental issues related to cannabis production: illegal production and federal regulatory inaction. Much like bootleggers during alcohol prohibition, the potential for profit for illegal growers exists solely because it is impossible to obtain cannabis legally in most of the country.¹¹⁵ Replacing the illicit market with a legal market would rob criminal enterprises of revenue and eliminate the incentive for environmentally damaging illegal production. Likewise, by exempting cannabis from the CSA, the EPA would be fully capable of regulating the cannabis industry in their normal capacities to protect the environment and public health.

2. International Considerations

Unfortunately, the CSA binds the decisions of the AG and HHS Secretary in other ways. Section 811(d)(1) requires that the AG control any substances that are subject to international treaties, conventions, or protocols to which the United States is party.¹¹⁶ Any such substance must be scheduled with a comparable level of control in the United States, irrespective of evidence-based determinations required elsewhere in the CSA.¹¹⁷ In particular, this section is a reference to the United Nations Single Convention on Narcotic Drugs of 1961 and the Convention on Psychotropic Substances of 1971 (together “Conventions”).¹¹⁸ The Conventions are broadly similar to the CSA, dividing psychotropic substances into schedules of control based on similar criteria as assessed by the World Health Organization (WHO).¹¹⁹ THC is a Schedule I substance under the Conventions, as it is under the

115. *See generally* NAT’L COMM’N ON LAW OBSERVATION & ENF’T, REPORT ON THE PROHIBITION LAWS OF THE U.S. (1931) (discussing the rise in crime associated with alcohol smuggling).

116. Controlled Substances Act, 21 U.S.C. § 811(d)(1) (2018).

117. *Id.*

118. *See* Single Convention on Narcotic Drugs, Mar. 30, 1961, 18 U.S.T 1407 (laying out mechanisms for an international drug control policy); Convention on Psychotropic Substances, Feb. 21, 1971, 32 U.S.T. 534 (scheduling substances based on WHO assessment of its risks and medical value).

119. Convention on Psychotropic Substances, *supra* note 118, at art. 2.

CSA.¹²⁰ Therefore, in administering the CSA, the AG is ultimately bound by the determinations of the WHO rather than the dictates of Congress.¹²¹

Citing the Conventions has historically been the last defense of administration officials faced with overwhelming evidence that cannabis has been misclassified as a dangerous drug.¹²² Still, the Conventions have not kept other signatories from national legalization. Canada has recently joined Uruguay—both original signatories—in flaunting the Conventions by nationally legalizing recreational cannabis.¹²³ The International Drug Control Board, the UN entity responsible for monitoring compliance with drug control treaties, has rebuked Canada’s legislation and called for return to compliance with the Conventions.¹²⁴ When pressed, Viroj Sumyai, head of the Control Board, could only offer that cannabis use was “not a healthy lifestyle choice” as justification of continued prohibition.¹²⁵ Even so, neither Canada nor Uruguay appear to be reversing course, nor have any other signatories moved to expel them for noncompliance, as the treaty allows.¹²⁶

This near-silence from the UN may be a tacit sign that the days of international cannabis prohibition are numbered.¹²⁷ Under the leadership of Secretary General António Guterres—who himself led the way to decriminalizing all drugs in Portugal while Prime Minister—the UN has taken a more liberal view about cannabis.¹²⁸ The WHO is currently reviewing the appropriateness of the current status of cannabis-related substances under

120. *Id.* at sched. I.

121. 21 U.S.C. § 811(d).

122. *See* NORML v. Ingersoll, 497 F.2d 654, 660–61 (D.C. Cir. 1974) (holding that the AG’s discretion as to which Schedule of control is appropriate for cannabis is ultimately circumscribed by the Single Convention); NORML v. Bell, 488 F. Supp. 123, 125 n.3 (D.D.C. 1980) (noting that NORML’s previous petitions for cannabis rescheduling had been denied because doing so would be inconsistent with U.S. treaty obligations under the Single Convention); United States v. Rodriguez-Camacho, 468 F.2d 1220, 1222 (9th Cir. 1972) (noting that the CSA’s control of cannabis was constitutional, in part because it was necessary to meet U.S. treaty obligations under the Single Convention).

123. Ashifa Kassam, *Canada Becomes Second Country to Legalize Cannabis Use*, GUARDIAN (June 19, 2018), <https://www.theguardian.com/world/2018/jun/20/canada-legalises-cannabis-senate-vote>.

124. Paulina Greer, *Canada’s Legalization of Cannabis ‘Contravenes’ International Convention: UN Drugs Control Board*, UN NEWS (Oct. 15, 2018), <https://news.un.org/en/audio/2018/10/1023212> (audio recording of interview with Viroj Sumyai).

125. *Id.*

126. *Id.*

127. *See id.* (providing that cannabis use was “not a healthy lifestyle choice” as the only justification of continued prohibition).

128. Sara Brittany Somerset, *Is the United Nations Finally Coming Around About Cannabis?*, FORBES (Dec. 17, 2018), <https://www.forbes.com/sites/sarabrittany Somerset/2018/12/17/is-the-united-nations-finally-coming-around-about-cannabis/#15d5fce05807>; *see* Susana Ferreira, *Portugal’s Radical Drugs Policy is Working. Why Hasn’t the World Copied It?*, GUARDIAN (Dec. 5, 2017), <https://www.theguardian.com/news/2017/dec/05/portugals-radical-drugs-policy-is-working-why-hasnt-the-world-copied-it> (detailing the stunning success of Portugal’s policy, instituted under Prime Minister Guterres, to decriminalize all illicit substances and focus efforts on treatment and recovery).

the Conventions.¹²⁹ In a press release, the Expert Committee on Drug Dependence stated that “there was enough new robust scientific information about [cannabis-related substances’] public health harms and therapeutic value to re-evaluate their current level of international control.”¹³⁰ The results of this review are currently pending, but any motion to loosen the Conventions’ restriction on cannabis would weaken the last legal measure propping up cannabis prohibition in the United States.¹³¹ Furthermore, the examples of Canada and Uruguay demonstrate that the Conventions are not an immutable barrier to stopping a policy with such profound consequences for American citizens.

B. Creating FDA Authority

Section B.

Title 21 – Food and Drugs

Chapter 9 – Federal Food, Drug, and Cosmetic Act

Subchapter XI – Cannabis Products

Part A – Introductory Provisions

§ 401 Note Short Title

This title may be cited as the ‘Cannabis Cultivation Act’.

The basic principle behind this act is that cannabis is rationally more akin to alcohol and tobacco than narcotics, and the law should treat it as such. Therefore, moving cannabis regulation out from under the umbrella of the CSA to the Federal Food, Drug, and Cosmetic Act (“FDCA”) is a logical choice. The FDCA already grants the FDA regulatory authority over the tobacco industry in addition to food and drug safety.¹³²

Tobacco products are a recent addition to FDA authority, a result of the Family Smoking Prevention and Tobacco Control Act (“Tobacco Control Act”).¹³³ This legislation came after the Supreme Court held that the FDCA did not grant the FDA authority over tobacco products, invalidating several Clinton-era anti-smoking initiatives as overstepping FDA authority.¹³⁴ In response, Congress passed the Tobacco Control Act in 2009, which amended

129. Press Release, WORLD HEALTH ORG., 40th WHO Expert Committee on Drug Dependence (Sept. 13, 2018), https://www.who.int/medicines/news/2018/news_briefing_ecdd/en/.

130. *Id.*

131. *Id.*

132. Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 351, 387 (2018).

133. Family Smoking Prevention and Tobacco Control Act, 123 Stat. 1776 (2009) (codified in scattered sections of 15 and 21 U.S.C.).

134. *Food & Drug Admin. v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 169 (2000).

the FDCA to make the FDA the primary federal regulatory authority over the manufacture, marketing, and distribution of tobacco products.¹³⁵

Although the Tobacco Control Act focused mainly on public health, its purpose and intent are largely the same as the Cannabis Cultivation Act; i.e. addressing pervasive problems caused by an underregulated activity through a comprehensive federal regulatory scheme.¹³⁶ Consider this from Congress's statement of findings: "Federal and State governments have lacked the legal and regulatory authority and resources they need to address comprehensively the public health and societal problems caused by the use of tobacco products."¹³⁷ Working from the conclusion that tobacco and cannabis are rationally comparable, the above statement would apply to the cannabis industry with the same force as the tobacco industry.

C. Findings, Purpose, and State/Federal Cooperation

§ 401. The Congress makes the following finding and declarations.

The Congress makes the following findings and declarations:

- (1) The national policy of cannabis prohibition in the United States has resulted in unconscionable human, economic, and environmental costs while failing to achieve any of its stated policy or public health outcomes.
- (2) The scientific evidence of the human and social damage of cannabis use is entirely insufficient to support inclusion of cannabis on the Schedules of controlled substances.
- (3) THC is less impairing than alcohol, as well as less addictive and less damaging to human health than either alcohol or tobacco, and as such, should be treated in the same way as those substances rather than as a dangerous narcotic.
- (4) The policy of making the cultivation of cannabis an illegal act within the territory of the United States has resulted in extensive damage to the country's public lands.
- (5) The concentration of cannabis production within certain states with limited water resources has dramatically strained the resources of those states.
- (6) The proliferation of unregulated indoor cannabis production has the potential to substantively worsen climate change through increased energy consumption.
- (7) The Environmental Protection Agency and the Department of Agriculture, having hitherto precluded from opining on cannabis production, have been unable to fulfil their normal and important role in

135. 123 Stat. 1776, 1781.

136. *Id.* at 1776–81.

137. *Id.* at 1777.

protecting the public health and environmental integrity of the United States.

(8) The economic potential of the cannabis industry in the United States has the potential to add substantial revenue and vitality to the national economy and to revitalize the local economies of many rural areas.

These findings restate the conclusions discussed in the preceding sections of this Note. They outline the four major areas of environmental concern related to cannabis production: (1) unregulated illicit production on public lands; (2) excessive water use in drought-prone states; (3) excessive energy use in indoor production; and (4) inaction from federal regulatory agencies. The government interest served by this legislation is limiting these collective concerns. These findings also acknowledge the human and economic cost of prohibition and the legal argument for removing cannabis from the CSA's control.

§ 402 Purpose

The purposes of this division are—

- (1) to amend the language of the Controlled Substances Act, 18 U.S.C. § 801 et seq., to remove cannabis and cannabis products from the authority of the U.S. Drug Enforcement Administration and federally legalize cannabis as an agricultural product,
- (2) to provide for the public and environmental health of the United States by recognizing cannabis as an agricultural product and to effectively regulate its cultivation,
- (3) to grant the U.S. Food and Drug Administration regulatory authority over cannabis products by amending the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 301 et seq.,
- (4) to create a model which states may follow in regulating legal cannabis production within their jurisdictions,
- (5) to amend the definition of “agricultural commodity” found in 7 U.S.C. § 1518 to include cannabis to allow cannabis producers access to Federal Crop Insurance protection, and
- (6) to amend 28 U.S.C. § 599A(b)(1) to include cannabis and grant the Bureau of Alcohol, Tobacco, Firearms, and Explosives authority to pursue criminal and regulatory violations of federal cannabis laws.

§ 403 Definitions

- (a) “Cannabis” means all parts of the plant *Cannabis sativa* L., whether growing or harvested and includes:
 - (1) The mature flowers of the cannabis plant intended for consumption
 - (2) The seeds of the plant

- (3) Resin extracted from any part of the plant
- (4) Any compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds, or resin.
- (b) “Mature plant” means a cannabis plant that has flowered and has visible buds.
- (c) “Immature plant” means a plant that has not flowered and does not have visible buds.
- (d) “Commissioner” means the United States Commissioner of Food and Drugs, head of the Food and Drug Administration.
- (e) “Marijuana” or “marihuana” shall be read as interchangeable with “cannabis.”
- (f) “Cannabis” does not include:
 - (1) The mature stalks of the plant and fiber made from the stalks
 - (2) Oil or cake made from the seeds of the plant
 - (3) Hemp or hemp products
- (g) “Grow _____ operation” _____ means licensed cultivation undertaken at one location.

§ 404 Authority

Because the cannabis industry has the potential to affect interstate and international commerce, Congress has the authority to regulate its production in the several states.

1. Federalism

As with any federal regulatory scheme, a major question with the Cannabis Cultivation Act is whether there is federal authority to regulate what is, essentially, a state activity.¹³⁸ Fortunately, Supreme Court precedent firmly supports the proposed system of cannabis regulation.¹³⁹ As a threshold matter, the Commerce Clause grants Congress the authority to regulate intrastate activities that substantially affect interstate commerce.¹⁴⁰ The Supreme Court held that cannabis production does substantially affect interstate commerce in *Gonzales v. Raich*.¹⁴¹ The Court held “Congress can regulate purely intrastate activity . . . if it concludes that failure to regulate

138. *Gonzales v. Raich*, 545 U.S. 1, 5 (2005).

139. *Id.* at 26.

140. *Nat’l Labor Relations Bd. v. Jones & Laughlin Steel Corp.*, 301 U.S. 1, 37 (1937)

(“Although activities may be intrastate in character when separately considered, if they have such a close and substantial relation to interstate commerce that their control is essential or appropriate to protect that commerce from burdens and obstructions, Congress cannot be denied the power to exercise that control.”).

141. *Raich*, 545 U.S. at 18.

that class of activity would undercut the regulation of the interstate market in that commodity.”¹⁴² Importantly, the Court in *Raich* defined prohibition as a form of regulation, holding: “Prohibiting the intrastate possession or manufacture of an article of commerce is a rational (and commonly utilized) means of regulating commerce in that product.”¹⁴³ If Congress chooses to change the form of federal cannabis regulation from prohibition to licensure—as this bill proposes—the precedential authority remains the same.

Section C. Regulatory Provisions

§ 405 State regulatory systems

- (a) The production or distribution of cannabis in any state or territory, in violation of the laws thereof, shall be prohibited.
- (b) Any state whose legislature chooses to legalize the cultivation of cannabis must form, as part of its department of agriculture or equivalent agency, an office of cannabis regulation.
- (c) This office’s duties shall include, but are not limited to:
 - (1) issuing and enforcing permits for commercial cannabis production, in accordance with §§ 405 and 406 of this subchapter, and
 - (2) determining the gross number of permits to be issued.
- (d) Any state choosing to legalize cannabis production but not to regulate its industry within the dictates of this section shall forfeit eligibility for grants administered by the Food and Drug Administration.

This bill does not preempt state cannabis prohibition or mandate state adoption. Rather, the Cannabis Control Act accomplishes its goals through a mandatory framework states must adopt if they chose to create a legal cannabis industry. As will be explored below, this framework directly addresses energy and water use to limit the industry’s externalities. Section 405(a) mirrors the provision of the Twenty First Amendment, which ensured that federal authorities will respect state prohibition laws.¹⁴⁴ Section 405(d) is the enforcement mechanism of this bill, conditioning the continued receipt of FDA grants on compliance with the regulatory scheme in the event of state legalization. This bill only regulates state activity if or when a state legislature legalizes cannabis production within their jurisdiction. Therefore, any state legislature that wishes to continue cannabis prohibition will be able to do so without penalty.

142. *Id.* at 18.

143. *Id.* at 26.

144. U.S. CONST. amend. XXI, § 2.

Regulating the actual market and deciding how and where cannabis could be bought and sold would be left to the individual states to determine. Cooperative regulatory schemes of this kind are standard practice with alcohol and tobacco markets.¹⁴⁵ The states would also determine how to tax cannabis products. Reasonable regulations from existing state laws should be considered, including limiting the sale of cannabis to persons over the age of 21, prohibiting consumption on publicly owned land or other property, and a comprehensive permitting scheme to control the location and operation of cannabis dispensaries.¹⁴⁶

2. Incentivization

To achieve its goal, Section 405(d) of the Cannabis Cultivation Act incentivizes states with a loss of eligibility for FDA grant programs. This penalty would only come into effect if a state legislature chooses to create a legal cannabis industry but not to adopt the Act's regulatory standards. These programs, such as the Manufactured Food Regulatory Program and the Animal Feed Regulatory Program, primarily subsidize state regulatory programs.¹⁴⁷ Some, such as the National Produce Safety Cooperative Agreement Program, fund nonprofit organizations, such as the National Association of State Departments of Agriculture, which would be unaffected by this penalty.¹⁴⁸ The 17 such programs operated by the FDA accounted for \$78,208,711.37 in total awards dispersed nationally for 2017.¹⁴⁹ In national

145. See, e.g., *Alcoholic Beverages*, VT. STAT. ANN. tit. 7, §§ 1–1012 (2018) (including the State of Vermont's laws taxing and regulating the intrastate use, sale, and distribution of alcohol and tobacco products, both federally regulated substances).

146. CAL. BUS. & PROF. CODE §§ 26000–26500 (2019).

147. *Animal Feed Regulatory Program Standards (AFRPS)*, U.S. FOOD & DRUG ADMIN., <https://www.fda.gov/ForFederalStateandLocalOfficials/ProgramsInitiatives/RegulatoryPrgmStnds/ucm475063.htm> (last visited Oct. 28, 2019); *Manufactured Food Regulatory Program Standards (MFRPS)*, U.S. FOOD & DRUG ADMIN., <https://www.fda.gov/federal-state-local-tribal-and-territorial-officials/regulatory-program-standards/manufactured-food-regulatory-program-standards-mfrps> (last visited Oct. 28, 2019).

148. *National Produce Safety Cooperative Agreement Program*, U.S. FOOD & DRUG ADMIN., https://www.fda.gov/federal-state-local-tribal-and-territorial-officials/grants-and-cooperative-agreements/national-produce-safety-cooperative-agreement-program#What_is (last visited Oct. 31, 2019).

149. *Grants and Cooperative Agreements*, U.S. FOOD & DRUG ADMIN., <https://www.fda.gov/ForFederalStateandLocalOfficials/FundingOpportunities/GrantsCoopAgrmts/default.htm> (last visited Oct. 28, 2019) (Food Protection Rapid Response Teams Program = \$5,900,000; Manufactured Food Regulatory Program Standards = \$11,600,000; Manufactured Food Regulatory Program Alliance = \$600,000; Scientific Conference Grant Program = \$235,000; Voluntary National Retail Food Regulatory Program Standards Cooperative Agreement Program = \$4,100,000; Retail Association Cooperative Agreement to Advance Conformance with the VNRFPS = \$1,525,908; Animal Feed Regulatory Program Standards = \$11,100,000; National Produce Safety Cooperative Agreement Program = \$1,100,000; Food Protection Task Force Grant Program = \$123,093; Tissue Residue

terms, this amount is small. The Virginia Office of Agriculture and Forestry, for example, has an operating budget of \$110,700,000 for fiscal year 2019.¹⁵⁰ The Texas Department of Agriculture's operating budget for 2018 was \$121,965,228.¹⁵¹

The main legal challenge posed by this sort of regulation is whether such coercive measures are constitutional under congressional spending power.¹⁵² According to the Anti-Commandeering Doctrine, the federal government cannot compel states to enforce federal statutes.¹⁵³ Still, the Court has held that Congress can incentivize states via its spending powers by conditioning the receipt of federal funds on state adoption of a federal scheme, as in *South Dakota v. Dole*.¹⁵⁴ In that case, the Court allowed a 10% withholding of federal highway funding from states which did not adopt the new federal minimum drink age of 21.¹⁵⁵ The Court stated that the 10% penalty was a reasonable incentive under the circumstances but noted that "in some circumstances the financial inducement offered by Congress might be so coercive as to pass the point at which 'pressure turns into compulsion.'"¹⁵⁶ The Court elaborated on the limits of this principle in *National Federation of Independent Business v. Sibelius*, ruling that a state losing all federal Medicaid funding for failing to adopt the Affordable Care Act was, in fact, unduly coercive.¹⁵⁷ Therefore, Congress may withhold federal funds to incentivize state program adoption, so long as the penalty is not so severe as to deprive the state of a genuine choice.

In total, the loss of eligibility for FDA grants would be minor compared to overall state agriculture budgets.¹⁵⁸ Based on the precedent of *Dole* and

Cooperative Agreement Program = \$731,020; State Produce Implementation Cooperative Agreement Program = \$30,900,000; Grant awards for the Integrated Laboratory System to Advance the Safety of Human and Animal Food program and the ISO/IEC 17025:2005 Cooperative Agreement Program are not reported).

150. COMMONWEALTH OF VA., 2018-2020 BIENNIAL BUDGET B-64 (2017).

151. TEXAS DEP'T OF AGRIC., FY 2018 OPERATING BUDGET 1 (2017) (total cited does not include \$597,915,413 in federal and state nutrition assistance programs).

152. See U.S. CONST. art. I, § 8, cl. 1 (granting Congress the authority tax and spend to promote the general welfare of the United States).

153. See generally *New York v. United States*, 505 U.S. 142, 175-77 (1992) (holding that it was unconstitutional for the federal government to compel state participation in a hazardous waste disposal program); *Printz v. United States*, 521 U.S. 898, 933 (1997) (holding that it was unconstitutional for the federal government to compel state police to participate in a gun control program).

154. See generally *South Dakota v. Dole*, 483 U.S. 203, 211-212 (1987) (discussing the constitutionality of withholding federal funds to incentivize state participation in a federal statutory scheme).

155. *Id.*; see 23 U.S.C. § 158(a)(1)(A) (2018) (authorizing withholding 10 percent of apportioned highway aid to states which allowed the purchase of alcohol by persons under 21 years old).

156. *Dole*, 483 U.S. at 211.

157. *Nat'l Fed'n of Indep. Bus. v. Sibelius*, 567 U.S. 519, 585 (2012); see 42 U.S.C. § 1396c (2018) (authorizing the Secretary of Health and Human Services to stop payments to states that fail to comply with ACA insurance requirements).

158. *Grants and Cooperative Agreements*, *supra* note 149.

Sibelius, this penalty would not deprive states of a meaningful choice of whether to join the Cannabis Cultivation Act's regulatory scheme. Therefore, this provision would be constitutional as a valid exercise of congressional spending power. Gently incentivized state adoption would be the most important step to achieving the Act's primary goal of creating a national regulatory scheme to protect the environment.

D. Limiting Energy Use

§ 406 Agricultural Cultivation

- (a) In permitting cannabis cultivators, state offices of cannabis regulation, as established under § 405(b) of this Title, shall:
 - (1) issue permits for cannabis to be grown outdoors by the cultivated acre, and
 - (2) issue permits for cannabis to be grown indoors by the mature plant.
- (b) In issuing permits for outdoor production, the state office of cannabis regulation shall set a maximum number of permitted acres within the state in keeping with the provisions of § 407 of this Title.
- (c) In issuing permits for cannabis to be grown indoors, the state office of cannabis regulation shall limit the total number of mature plants which may be grown indoors within the state to no more than 250 mature plants per permitted acre of outdoor cannabis within the state.
- (d) As used in this section,
 - (1) "cannabis to be grown outdoors" means any production for which natural sunlight is the main source of light for the mature plants, and
 - (2) "cannabis to be grown indoors" means any production for which artificial light is the main source of light for the mature plants.

This section achieves the Act's aim of limiting the carbon footprint of indoor production. The copious energy use of indoor production is, arguably, the greatest long-term environmental concern related to the cannabis industry.¹⁵⁹ Nevertheless, there are several competing interests at play. One

159. Martin Vezér, *ESG Risks of Cannabis Cultivation: Energy, Emissions and Pesticides*, SUSTAINALYTICS (July 16, 2018), <https://www.sustainalytics.com/esg-blog/esg-risks-of-cannabis-cultivation-energy-emissions-and-pesticides/>; <https://www.sustainalytics.com/esg-blog/esg-risks-of-cannabis-cultivation-energy-emissions-and-pesticides/>.

of the main appeals of indoor cannabis from a market perspective is that the greater control of the grow environment can produce a higher quality product.¹⁶⁰ In states with recreational cannabis, product grown indoors is generally considered top-shelf.¹⁶¹ Therefore, prohibiting indoor production entirely is unrealistic. This provision seeks to limit the proportion of cannabis produced indoors by capping indoor permits at a percentage of outdoor permits.

Other countries have considered similar measures for their cannabis industries.¹⁶² The final report of Canada's Task Force on Cannabis Legalization and Regulation offered six specific recommendations, including to "[p]romote environmental stewardship by implementing measures such as permitting outdoor production."¹⁶³ The Task Force found that "[e]ncouraging responsible environmental practices through less reliance on indoor lighting, irrigation networks and environmental controls (i.e., heating and cooling, humidity controls) can contribute to substantially reducing the environmental footprint of cannabis production facilities."¹⁶⁴

The limit in § 406(c) is based on an estimate that cannabis planted at a high density outdoors occupies approximately 18 ft² per plant, equaling 2,420 plants per cultivated acre.¹⁶⁵ The limit of no more than 250 indoor plants per acre of outdoor cultivation would mean—in theory—that only 10% of production within a state could be indoor. While this provision does not set a hard cap on indoor production, it would nevertheless dramatically limit the total energy usage of the industry.

Functionally, this scheme is most similar to past cap-and-trade legislation, such as that of the proposed American Clean Energy and Security Act of 2009.¹⁶⁶ Although this bill never became law, there are equivalent U.S. statutes that cap and trade emissions other than carbon. For example, in 1990, Congress amended the Clean Air Act to include an emissions trading scheme

160. Trevor Hennings, *Growing Cannabis Indoors vs. Outdoors: 3 Key Differences*, LEAFLY (May 29, 2016), <https://www.leafly.com/news/growing/indoor-vs-outdoor-cannabis-growing-3-key-differences>.

161. *Id.*

162. HEALTH CAN., A FRAMEWORK FOR THE LEGALIZATION AND REGULATION OF CANNABIS IN CANADA, THE FINAL REPORT OF THE TASK FORCE ON CANNABIS LEGALIZATION AND REGULATION 32 (Dec. 2016), <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/laws-regulations/task-force-cannabis-legalization-regulation/framework-legalization-regulation-cannabis-in-canada.html>.

163. *Id.* at 4.

164. *Id.* at 32.

165. Jonathan P. Caulkins, *Estimated Cost of Production for Legalized Cannabis* 14 (RAND, Working Paper WR-764-RC, 2010).

166. American Clean Energy and Security Act, H.R. 2454, 111th Cong. (2009).

for sulfur dioxide, the primary cause of acid rain.¹⁶⁷ This system has been in place for nearly thirty years, but the basic premise of cap-and-trade has never been successfully challenged.¹⁶⁸ Importantly, § 406 of the Cannabis Cultivation Act is less restrictive than traditional cap-and-trade because the same party may own both the indoor and outdoor permits. Thus, a cultivator can essentially trade offsets and allowances with themselves. Given that cap-and-trade has survived the courts, this provision of the Cannabis Cultivation Act most likely will as well.

E. Limiting Excessive Water Use

§ 407 Water Use

- (a) The state office of cannabis regulation shall establish a maximum number of cultivated acres that may be permitted for cannabis cultivation within their state.
- (b) In determining the maximum number of permitted acres, the office or other appropriate state entity must produce a scientific report detailing the current gross and net amount of water available within the state, considering all state and federal water use laws and regulations.
- (c) In producing its report on available water, the state must make use of the best scientific information available.
- (d) The final determination of maximum permitted acres may be no higher than the burden on the water supply may bear as determined in the scientific report, estimated at a rate of 271,040 U.S. gallons per acre, per year.

The overall effect of this section is to provide a hard cap on the total amount of cannabis produced within a state based on its available water resources. The determination of 271,040 gallons per acre, per year estimates 1 gallon per plant, per day, multiplied by 2,420 plants per acre and a maximum growth period of 16 weeks.¹⁶⁹ Forcing states to tie their permits to an assessment of available water resources will prevent near-term water shortages.

167. Clean Air Act, Pub. L. No. 101-549, 104 Stat. 2399 (1990) (codified as amended at 42 U.S.C. § 7651b(a) (2018)).

168. *Id.*

169. Casey O'Neill, *How Much Water Does It Take to Grow Cannabis?* GANJIER (July 2, 2015), <https://web.archive.org/web/20180317115627/http://www.theganjier.com/2015/07/02/how-much-water-does-one-marijuana-plant-need-to-grow/>.

Although this scheme is original to this bill, it mirrors that of other federal resource-management acts. For example, the Magnuson–Stevens Fishery Conservation and Management Act established Regional Fishery Management Councils empowered to “develop annual catch limits for each of its managed fisheries that may not exceed the fishing level recommendations of its scientific and statistical committee[.]”¹⁷⁰ The Councils enforce these catch limits through individual permits granting access to a portion of the fishery’s allowable catch.¹⁷¹

Although many plaintiffs have challenged the annual catch limits, these challenges have been limited to the methods used by the Councils to establish their annual quotas.¹⁷² Therefore, parties may conceivably challenge the annual limits on cannabis production permits created under the Cannabis Cultivation Act. Courts, however, are unlikely to entertain challenges to the overall scheme because managing and conserving natural resources is a legitimate government interest.¹⁷³

The Act in its entirety serves the goal of preventing water shortages in western states more than this specific provision. However, a principle injustice of life on earth is that water resources are unevenly distributed around the world. Political will rather than the availability of natural resources, however, has determined current patterns of cannabis production in the United States. Amending the CSA to end federal prohibition would allow for production of the water-intensive plant to naturally migrate to areas with more abundant water resources.

F. Personal Production

§ 408 Home production for personal use

- (a) Home cultivation of cannabis for personal use shall be unregulated by this chapter, as provided in subsections (b) and (c).
- (b) Home cultivation for personal use shall not exceed 16 mature plants at one time, per domicile.

170. Magnuson–Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1852(h)(6) (2018).

171. *Id.* § 1802(23).

172. *See* Massachusetts v. Pritzker, 10 F.Supp.3d 208, 211 (D. Mass. 2014) (holding that the annual catch limit promulgated by the New England Fisheries Management Council was reasonable and in keeping with the Magnuson-Stevens Act’s intent “to prevent overfishing, to rebuild overfished stocks, to insure conservation, to facilitate long-term protection of essential fish habitats, and to realize the full potential of the Nation’s fishery resources”).

173. *See, e.g.,* Alaska Const. Legal Def. Conservation Fund, Inc. v. Kempthorne, 198 F. App’x 601, 602–03 (9th Cir. 2006) (holding that laws intended to conserve finite natural resources are subject to rational review and managing natural resources is a legitimate government interest).

- (c) The provisions of this section do not preempt state statutes limiting home cannabis cultivation.
- (d) As used in this section, “domicile” means any property or part of a property which is maintained as a residence.

Many state cannabis laws allow for growing a small number of plants at home for personal use.¹⁷⁴ Vermont allows two mature plants per household.¹⁷⁵ California and Colorado allow six.¹⁷⁶ However, most states require that personal grows are conducted indoors for safety reasons.¹⁷⁷ Limits on numbers of personal-use plants and requirements to keep those plants behind locked doors were both intended to limit the risk of theft or diversion.¹⁷⁸ Colorado, for example, originally allowed up to 99 personal-use plants for registered medical users but lowered the limit to 16 after it became apparent that this limit was being exploited to produce cannabis for the illegal market.¹⁷⁹ However, as discussed above, regulators can reasonably expect that a national legal market would greatly reduce or eliminate the demand for illicit cannabis.

A further consideration is incentivizing home growers to grow outdoors to limit energy use. However, limiting personal, recreational production to 2–6 plants at one time may prevent home growers from meeting their personal needs within the available growing season. One study done in Colorado estimated that the typical cannabis user will consume around 3.53 ounces of cannabis annually, although the actual numbers would vary considerably from person to person.¹⁸⁰ Per plant yields are similarly inconsistent, but the Rand Corporation offered 1.2 ounces per plant as an aggregated average for commercially grown plants.¹⁸¹ Therefore, a theoretical average consumer would need to successfully harvest at least three average plants per year to meet their needs. This would tacitly require many home growers to grow indoors year-round in parts of the country with growing seasons that would not allow multiple harvests. The higher 16-plant

174. See generally VT. STAT. ANN. tit. 18 § 4230(a)(1)(A) (2019); CAL. HEALTH & SAFETY CODE § 11362.2(a)(3) (2019).

175. VT. STAT. ANN. tit. 18 § 4230(a)(1)(A).

176. CAL. HEALTH & SAFETY CODE § 11362.2(a)(3) (2019); COLO. CONST. art. XVIII, § 16(3)(b).

177. COLO. CONST. art. XVIII § 16(3)(b) (reading “provided that the growing takes place in an enclosed, locked space, is not conducted openly or publicly”).

178. Colleen Sikora, *How the Original 99-Plant Law Grew Colorado's Marijuana Black Market*, KRDO (May 7, 2018), <https://www.krdo.com/news/how-the-original-99-plant-count-law-grew-the-marijuana-black-market-in-colorado/739255174>.

179. *Id.*

180. CHARLES BROWN & PHYLLIS RESNICK, COLO. FUTURES CTR., THE FISCAL IMPACT OF AMENDMENT 64 ON STATE REVENUES 4 (2014).

181. Caulkins, *supra* note 165, at 24.

allowance would make it easier for a household with multiple regular cannabis users to meet their yearly needs with cannabis grown outdoors.

G. Medicinal Cannabis

§ 409 Medicinal-use Cannabis exempted

This chapter does not regulate or in any way control cannabis produced for medicinal use.

This legislation is written to only regulate a part of the cannabis industry; i.e. cannabis produced as an agricultural commodity. Cannabis as a pharmaceutical product should be addressed with its own legislation. Medical cannabis, especially for patients with compromised immune systems such as cancer patients, would benefit from more tightly controlled production and a more refined product. Removing cannabis from the Schedules of controlled substances would, however, require states to allow access to medicinal cannabis, regardless of state restrictions on recreational use.¹⁸²

H. The ATF and Crop Insurance

Section D. 28 U.S.C. § 599A(b)(1) amended to read:

28 U.S.C. § 599A(b)(1) – Bureau of Alcohol, Tobacco, Firearms, and Explosives

(b)Responsibilities.—Subject to the direction of the Attorney General, the Bureau shall be responsible for investigating—

(1) criminal and regulatory violations of the federal firearms, explosives, arson, alcohol, ~~and~~ tobacco, and cannabis smuggling laws;

This section simply expands the authority of the Bureau of Alcohol, Tobacco, Firearms, and Explosives to encompass crimes related to cannabis. This is a necessary and logical step to legitimizing the cannabis industry and enforcing reasonable controls on its operation.

Section E. 7 U.S.C. § 1518 is amended to read:

7 U.S.C. § 1518 – “Agricultural commodity” defined

“Agricultural commodity”, as used in this subchapter, means wheat, cotton, flax, corn, dry beans, oats, barley, rye, tobacco, cannabis, rice, peanuts, soybeans, sugar beets, sugar cane, tomatoes, grain sorghum,

182. See *Gonzales v. Raich*, 545 U.S. 1, 42 (2005) (holding that congressional intent as expressed in the CSA is the preemptive factor invalidating California’s medicinal cannabis law).

sunflowers, raisins, oranges, sweet corn, dry peas, freezing and canning peas, forage, apples, grapes, potatoes, timber and forests, nursery crops, citrus, and other fruits and vegetables, nuts, tame hay, native grass, aquacultural species (including, but not limited to, any species of finfish, mollusk, crustacean, or other aquatic invertebrate, amphibian, reptile, or aquatic plant propagated or reared in a controlled or selected environment), or any other agricultural commodity, excluding stored grain, determined by the Board, or any one or more of such commodities, as the context may indicate.

By limiting outdoor production, § 406 would also increase the chance of crop damage from weather and pests. This provision would lessen that concern by opening access to insurance from the Federal Crop Insurance Corporation (“FCIC”) to cannabis cultivators. The FCIC is authorized to “insure, or provide reinsurance for insurers of, producers of agricultural commodities grown in the United States. . . .”¹⁸³ By changing “agricultural commodity” as defined by § 1518, cannabis cultivators would be able to benefit from the FCIC’s subsidized crop insurance plans. Because “agricultural commodity” already encompasses most crops, including tobacco, it is unlikely that this will face legal challenges once the CSA is amended.¹⁸⁴

CONCLUSION

At every turn, the environmental damage of cannabis production has been a manufactured issue, the result of an ill-informed policy guided more by propaganda and animus than fact. Had the federal government not outlawed cannabis in the first place, there never would have been a thriving black market. If Congress’s stance on cannabis was not lagging behind the rest of the country, the EPA and USDA could offer nation-wide guidance and regulations to minimize the industry’s negative externalities. Reducing or eliminating these externalities is fully within the regulatory authority of the federal government. The issue is inaction.

If adopted, the Cannabis Cultivation Act would dramatically reduce or eliminate the four identified environmental concerns related to cannabis production. By removing cannabis from the Schedules of Controlled Substances, illegal cannabis production and its attendant consequences would diminish as it is replaced by a legal market. Furthermore, by removing the barrier of prohibition, the EPA would be fully capable of effectively

183. 7 U.S.C. § 1508(a)(1) (2018).

184. *Id.* § 1518 (defining “agricultural commodity”).

regulating the cannabis industry and protecting the environment and consumers from unintentional harm. Limiting the proportion of indoor to outdoor production to a ratio of 1 to 10 leverages supply and demand to minimize net energy consumption and its corresponding carbon footprint. Finally, the Act ensures that states will not over-strain their water supply for the sake of a profitable industry by requiring that states cap their total cultivation to correspond with available water resources.

The negative side effects of federal cannabis prohibition are well documented. As a matter of criminal justice, prohibition has contributed to mass incarceration and the legal disenfranchisement of millions of Americans.¹⁸⁵ Currently, the United States incarcerates 2.5 million people, the highest per capita rate in the world.¹⁸⁶ Of those, approximately half are for drug-related offenses, and 9 out of 10 are for simple possession.¹⁸⁷ In 2017, there were 659,700 arrests for cannabis law violations, 91% of which were for simple possession.¹⁸⁸

As a matter of public policy and deterrence, cannabis prohibition has been a categorical failure. The United States spends approximately \$3.6 billion per year on enforcing cannabis prohibition, with no corresponding reduction on use or availability.¹⁸⁹ In the words of the American Civil Liberties Union: “[The War on Drugs] has needlessly ensnared hundreds of thousands of people in the criminal justice system, had a staggeringly disproportionate impact on African-Americans, and comes at a tremendous human and financial cost.”¹⁹⁰

The human and financial cost of prohibition sits in dark contrast to possibilities of a legal market which we already see playing out in legal states. California, Colorado, Washington State, and Oregon collectively have seen \$6,087,600,000 in revenues from recreational sales.¹⁹¹ In 2015 alone, the cannabis industry created 18,000 new, full-time jobs in the state of Colorado.¹⁹² A recent paper published in the Journal of the American Medical Association found a 14.4% reduction in prescription opioid use in states

185. *Drug War Statistics*, DRUG POL’Y INST., <http://www.drugpolicy.org/issues/drug-war-statistics> (last visited Oct. 28, 2019).

186. *Id.*

187. *Id.*

188. *Id.*

189. AM. C. L. UNION, *supra* note 12, at 4.

190. *Id.*

191. Andrew DePietro, *Here’s How Much Money States are Raking in From Legal Marijuana Sales*, FORBES (May 4, 2018), <https://www.forbes.com/sites/andrewdepietro/2018/05/04/how-much-money-states-make-cannabis-sales/#29153034f181>.

192. Christopher Ingraham, *The Marijuana Industry Created More Than 18,000 New Jobs in Colorado Last Year*, WASH. POST (Oct. 27, 2016), https://www.washingtonpost.com/news/wonk/wp/2016/10/27/the-marijuana-industry-created-over-18000-new-jobs-in-colorado-last-year/?noredirect=on&utm_term=.2a181ecbad51.

which allowed home cultivation of medicinal cannabis.¹⁹³ Today, an abundance of data shows that we should add the unnecessary environmental impact to the already stunning human and economic costs of cannabis prohibition.

193. Ashley C. Bradford et al., *Association Between US State Medical Cannabis Laws and Opioid Prescribing in the Medicare Part D Population*, 178 JAMA INTERNAL MED. 667, 667–72 (2018).