Transformation of Unregulated Cannabis Cultivation Under Proposition 64

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Executive Summary

Six years after its inception, California's cannabis regulatory system has yet to transition a significant number of unlicensed cultivators into licensure. The reasons for this are numerous, including local bans and restrictive zoning; expensive compliance requirements; enforcement practices that suppress licensure; unpredictable, capricious, and slow permitting processes; opportunistic actors in market and state sectors; and distrust among cultivators, buyers and regulators.

Exacerbating all of these issues is the collapse in wholesale prices in both the licensed and unlicensed markets that has resulted from legalization. The volume of licensed production alone vastly exceeds California's aggregate demand. Like many other agricultural crops in the past, cannabis is undergoing a crisis of overproduction. Out of the estimated tens of thousands of cultivators prior to legalization, a scant 4900 cultivators are licensed in April 2024. This is a 41% decrease since early 2022 in licensed cultivators, a decline that is likely mirrored among unlicensed cultivators. This sectoral collapse, across licensed and unlicensed lines, has had cascading effects on cultivator livelihoods, environments and communities as well as down-stream supply chain dynamics.

For both licensed and unlicensed cultivators, excess supply and high regulatory costs strongly motivate cannabis sales outside of licensed channels, including out of state. The licensed market has come to depend on the unlicensed market to navigate the double squeeze of plummeting prices and high regulatory costs. During our research, many licensed and unlicensed cultivators sold their product below the cost of production, if they could sell at all. For an agricultural sector with limited or no access to credit, these losses were unsustainable, resulting in widespread attrition. With no stabilizing agricultural policy toward cannabis forthcoming, these trends will likely continue until the market does what government has not, namely, calibrate cultivated area to state consumer demand.

Based on over 150 extended interviews with people involved with cannabis cultivation in three regions of California, this report documents and interprets the persistence and transformation of unlicensed cultivation since legalization. We found that the unlicensed market continues to provide important livelihood opportunities for many Californians, including low-income, immigrant and differently-abled people and people of color across urban and rural environments. Informal social norms and customs formed under prohibition have been disrupted and displaced by adversarial regulatory relationships and stringent market competition. The costs and complexity of licensure, compounded by dysfunctional and capricious local administration and enforcement, deter small-scale and legacy growers from entering the regulated sector.

Despite high barriers to entry and increasingly dire economic circumstances, unlicensed cultivators are scapegoated in many quarters for the travails of licensed market players. The vilification of unlicensed cultivators not only distracts attention away from market and regulatory dynamics that are responsible for these travails, but also short-circuits much needed discussions about equity, sustainability, and economic development in rural and urban places. Cannabis cultivation and commerce has been a key pillar of economic life for many Californians for at least half a century. Its diminution and tumultuous transformation into legal regulation holds many implications for California generally, and for its most marginalized communities and ecologies, specifically.

In this report, we first give a historical overview of the unlicensed market from its first prohibition in 1913 until 2021, just before inauguration of this research. We then review our methodological approach, detail 33 findings, and present an interpretive discussion of these findings. Finally, we advance a number of recommendations that:

- Reform Enforcement Approaches to an Altered Cultivation Sector;
- Place Limits on Local Control;
- Address Fallout from Wholesale Cannabis Price Crash on Affected Cultivators and Communities;
- Widen Pathways to Licensure through Fair, Accessible Licensing and Permitting Systems; and
- Create Consistent Agricultural Policy toward Cannabis to Stabilize Markets and Prices.

With the sunsetting of provisional licenses and the requirement for a completed CEQA prior to new licensure, we find it unlikely that more legacy cultivators will transition into the licensed sector unless there is a major policy overhaul. We believe it is time to shift enforcement approaches away from punishment and exclusion, especially at the local level, to education and inclusion, ideally through programs and allowances that widen pathways to legal cultivation at small scales. For those leaving cultivation altogether and for the communities suffering because of these lost livelihoods, resources are needed. Ultimately, to stabilize the legal cannabis cultivation sector and incentivize legal market operation, a consistent, supportive agricultural policy toward cannabis is needed.

Introduction

This report conveys the findings of a two-year study entitled "Transformation of Unregulated Cannabis Cultivation Under Proposition 64." The project was funded by the California Department of Cannabis Control through an award to the University of California, Berkeley (Agreement Number 065306, APP ID RG-1603130715-595). The research took place between February 2022 and December 2023.

The Adult Use of Marijuana Act (AUMA), commonly known as "Prop 64," was passed by California voters in 2016 and took effect on January 1, 2018. Prop 64 legalized the production, distribution, sale and non-medicinal, adult use of cannabis under State law, subject to approval and implementation by local jurisdictions and governed by an array of California regulatory agencies. Although cannabis remains illegal under Federal law, twenty five states have also legalized adult-use cannabis (with another sixteen states allowing medical cannabis). Fifty-three percent of the U.S. population lives in states where recreational cannabis is now legal, and another 21 percent resides in states that allow medical use. Federal law enforcement efforts have generally receded.

Though reliable numbers are necessarily hard to assess, the value of California's cannabis harvest likely outstripped most other agricultural crops in California prior to legalization. A primary objective of Prop 64 was to convert this large, well-established cannabis cultivation sector from illegal to legal under State law. Established cannabis growers, it was hoped, would elect to "come out from the shadows," obtain licenses and permits, comply with new regulations, sell their crops to licensed buyers, and pay state and local taxes. This would not only remove the threat of legal prosecution but also begin to counteract the social stigma long attached to cannabis, affording growers a normalized status as agricultural producers and businesspeople.

By 2021, when funding for this project was awarded, it had become evident that many legacy growers were either struggling to enter California's new, legal cannabis industry or choosing not to pursue entry at all. The project's overall aim was to understand the extent and nature of these phenomena and the underlying factors causing or contributing to them. It also aimed to understand how the unlicensed or "traditional' market had transformed since legalization. Specific questions in the project proposal included:

- Why do unregulated cultivators persist?
- Where and how do they sell?
- How do cultivators calculate and perceive risk?
- What are relations with neighbors and community like?
- How are cultivators navigating supply chains?
- Are agricultural and environmental practices adapting in new ways?
- How do cultivators view legal market participation?

Answering these questions required a quantitative approach integrating ethnographic methods, on-site interviews, and participatory, citizen science, building on the networks and relationships that co-PI Michael Polson had developed over a decade of prior research. Project team members conducted over 125 in-depth interviews with cultivators and other stakeholders in the cannabis sector in three focal regions: the Emerald Triangle in northwestern California, the Sierra foothills in the northern Sacramento Valley,

and the Inland Empire in southern California. We also attended and observed cannabis-related events, hearings and activities and conducted extensive reviews of media coverage, government reports, scholarly studies and other data sources (e.g., remote sensing imagery) to complement and contextualize our findings. In these ways, we have built an assessment of unregulated cannabis cultivation 'from the ground up' to inform policy making and implementation. As we explain in the Methods section below, on-the-ground, qualitative research uniquely provides accurate, textured data on hard-to-reach populations, like unlicensed cultivators and those operating in the shadows of the law.

Background

For most of the twentieth century, cannabis and its cultivation were illegal nationwide under harmonized federal, state, and local laws. California was one of the first states to make cannabis illegal in 1913, early in a wave of state-by-state prohibitions leading up to the federal Marihuana Tax Act of 1937. In 1996 and 2016, California was again at the forefront of a wave of state-by-state reforms, this time for the legalization of medical and recreational cannabis, respectively. In this section we summarize the history of California cannabis cultivation to help convey the enormity of what Prop 64 aspired to do: to bring a longstanding, deeply rooted, informal and illegalized economic sector, touching communities and livelihoods in every county of the state, into a formal, regulated relationship with the state.

The Prohibition Period (1913-1996)

From the beginning, cannabis prohibition was racially inflected, like the opium laws that preceded it (Gieringer 1999; Musto 1999). Small amounts of cannabis had been grown throughout the Southwest since the Mexican colonial period, but cannabis was not widely cultivated or used at the time of the 1913 ban (Campos 2018). It was present within some ethnic communities (e.g. Sikh, Lebanese) in California's Central Valley (Gieringer 1999), and advocates of prohibition played on anti-Asian racial prejudices to portray cannabis as a threat to the general populace. Following passage, the ban was enforced against other minority groups, particularly Mexican agricultural workers and the communities they had built in southern California (Gieringer 1999).

In the absence of significant cultivation, law enforcement focused on distribution and use, especially in communities of color and low-income communities. Arrest rates increased significantly in the 1920s, punctuated by anti-cannabis eradication and seizure raids. By 1930, cannabis constituted 26% of drug arrests in California and 60% of drug arrests in Los Angeles (Gieringer 1999). The federal Marihuana Tax Act instituted a restrictive taxation and licensing schema for cannabis production, which effectively amounted to a *de facto* prohibition. Anti-cannabis rhetoric targeted African-American men who threatened the "purity" of white women in increasingly ubiquitous jazz clubs (Sloman 1979).

The first wave of prohibition reached its national apogee between 1951-1956 when the Boggs Act (1951) and Narcotics Control Act (1956) escalated penalties for cannabis, including felony charges and mandatory minimum sentences. One justification for the new statutes was concern over "gangs" of racially-marked, cannabis-dealing youth supposedly "invading" the newly-forming white suburban neighborhoods of southern California (Lassiter 2015). From 1962 to 1972, California saw a twenty-fold increase in cannabis arrests, 95% of which were felonies for simple possession (Aldrich & Mikuriya 1988). In 1969, however, the Marihuana Tax Act was struck down, leaving the nation without clarified

cannabis policy. In its stead, President Nixon instituted the Controlled Substances Act in June 1971, classifying cannabis as a Schedule I drug. Like cannabis prohibition's utility in targeting Mexican, African-American and miscegenating Whites, Nixon envisioned this renewed cannabis prohibition to be useful in stopping the anti-war movement, according to his close advisor "by getting the public to associate the hippies with marijuana," then criminalizing it, allowing the government to "disrupt those communities" (Baum 2016).

Indeed, by the mid-1960s cannabis had become popular among the counterculture and anti-war movements, for whom prohibition exemplified the unreasonable, violent hypocrisy of those in authority. Cannabis use was celebrated in the widespread call to "drop out, tune in and turn on," a symbol and tactic of resistance to the state. California's cannabis cultivation sector emerged in the late 1960s, when a branch of the counterculture movement migrated onto the denuded landscapes left by logging companies in the northwest part of the state. The "back-to-the-land" movement involved mostly white youth with alternative societal visions escaping the increasingly tumultuous streets of US cities. Similar communities emerged on post-extractive landscapes in parts of Oregon, Tennessee, Hawaii, Maine, and West Virginia, among other places. Over the 1970s, the geography of the back-to-the-land movement became the geography of cannabis production, nowhere as forcefully as in what would come to be known as the "Emerald Triangle" (Rafael 1985). One long-time local broker remembers that by 1979, the Emerald Triangle had become a net exporter of cannabis. By the late 1980s, as increasing enforcement (see below) pushed cannabis indoors, cultivation spread out of its remote, rural geographies into urban and suburban areas and communities of color, a trend amplified under medical cannabis decriminalization in 1996.

In the 1970s, decriminalizing, even legalizing, cannabis briefly seemed possible. The widespread mandated criminalization of young, white, upwardly mobile cannabis users generated loud backlash, and numerous states, including California, voted to decriminalize cannabis possession to alleviate ballooning prison rolls, budgetary costs, and political pressures. In 1978, San Francisco became one of the first cities to completely decriminalize cannabis under George Moscone, although Mayor Diane Feinstein failed to implement the law after Moscone's assassination. Similarly, citizens of neighboring Berkeley a year later in 1979, voted to decriminalize the growing, possession, transportation, and sale of cannabis by making these offenses the lowest priority of the local police department. Many within the cannabis rights movement saw legalization on the horizon, but political missteps and the conservative turn of the Reagan revolution turned the tides.

As the pendulum swung, absolute numbers of drug-related arrests rose in the 1980s and from the mid-1990s, cannabis has comprised the largest share of drug arrests (King & Mauer 2006). Enforcement and penalties increasingly relied on police discretion, resulting in large racial disparities in arrests and imprisonment. Though most arrests targeted low-level offenses, like possession, officials responded to growing tolerance of use by targeting upstream producers and dealers, as they did in the 1950s. Such "supply-side" strategies were supposed to reduce consumption by raising the costs of production and thus prices for consumers. Prices did indeed go up, from $100 a pound in the early 1970s to $4,000-6,000/lb for prime California cannabis in the 1980s in response to the CAMP program (Campaign Against Marijuana Planting) under California's Department of Justice and successive federal laws (1984, 1986, 1988, 1989) that raised risks even further. But supply-side restrictions did not reduce cultivation: the National Narcotics Intelligence Consumers Committee estimated that domestic production doubled between 1986 and 1989; by 2002 it was nearly 5 times the levels of 1986 (Gettman 2007).

Cannabis prohibition *created and shaped* thriving cannabis markets, rather than diminished them (Polson 2021). The drug war failed to stop supply, and it increased rewards (via profits) to cultivators. By keeping wholesale prices high, cannabis prohibition functioned as both a rural and urban development strategy and an agricultural policy. Prohibition fostered interdependence in secrecy-shrouded grower communities, helping to connect once-estranged community factions (e.g. loggers, hippies, Native communities, miners, in some areas) and forge cohesion in a newly-emergent illegalized market. The US cultivation sector was a labor intensive, small farm/operation sector. Larger operations and capital investments risked detection, seizure and prosecution (Polson & Bodwitch 2021). High prices meant that cannabis cultivation sites did not need to produce enormous amounts; a dozen plants could provide a yearly salary. Cultivation underwrote local infrastructure and community institutions as well as households and families (Anders 1990; Corva 2014). Proceeds from unlicensed cultivation fostered formal enterprises in commercial areas and various forms of activism, too (Polson 2021).

Medical Cannabis (1996-2016)

In 1996, California voters passed Proposition 215, the Compassionate Use Act, becoming the first state in the nation to decriminalize cannabis for medical use. For eight years, medical cannabis cultivation existed in a gray area of law, loosely structured around buyer's clubs, where cultivators could vend directly to club operators. Otherwise, the ability to medically cultivate cannabis was fought out in a series of legal battles between cultivators, patients, advocates, law enforcement, and prosecutors. Subsequent passage of SB420 in 2004 permitted individual, collective, or cooperative provisioning by caregivers and/or patients. Cooperative cultivation required significant organization, so many opted to grow individually or in patient collectives. By the late 2000s, when the *Kelly* decision lifted state limits on individual cultivation amounts and the US Department of Justice's Ogden Memo appeared to ease enforcement against medical cultivators, many growers began growing under medical auspices (i.e. cultivators became patients; cultivators gathered patient recommendations to authorize growing), regardless of whether they sold on medical or non-medical markets.. In short, the cultivation sector became "medicalized," thus injecting a new ethical orientation to cultivation (Polson 2015) that valorized the provisioning of medicine, healthy, organic cultivation practices, and community support through the gifting or not-for-profit provisioning of cannabis to those in medical or economic need. Most farms remained relatively small, growing less than 99 plants in any single site to avoid the potential of detection and prosecution for felony cultivation. Prices were still relatively high for cannabis during this period, allowing many to enter the cultivation sector at relatively small scales. With this newfound licitness, cultivation expanded across California in ways large and small.

Since there were no state rules or tracking of product, cultivators adapted to this gray, informal zone and adjusted with each new court decision that altered the parameters and landscape of cultivation. Some localities, like Oakland, Humboldt, Mendocino and Isleton attempted to regulate cultivation but were undermined by federal threats and evolving court decisions in California. Medical marijuana provided an open, accessible path for cultivators to take part in an emergent, yet incomplete and unstable, legal system, while protecting smaller farms and the ecologies of which they were a part.

Proposition 64

In 2016, California voters passed Proposition 64, or the Adult Use of Marijuana Act (AUMA). The AUMA set out comprehensive rules for adult use cannabis supply chains, authorized the regulation and taxation of cannabis, rewrote criminal laws to make regulated cannabis legal, and protected "adult use," including the ability to grow up to 6 (indoor) plants. While ceding local regulatory power to cities and counties (including the authority to ban), the AUMA established state licensing categories and processes. Cultivation would be subject to regulatory control by a suite of state agencies, including Fish & Wildlife, the State Water Resource Control Board (SWRCB), Pesticide Regulation, CalOSHA, and Food & Agriculture. In order to grow in licensed ways, cultivators had to obtain state licenses and local permits, declare water sources, avoid surface water diversion, restrict amendments and inputs to approved organics, refrain from hillside planting, test their product for pesticides, mycotoxins and heavy metals, and participate in a track-and-trace system, among other requirements (Bodwitch et al 2021). The state also required local agencies (if they did not ban cannabis) to participate in environmental regulation by conducting California Environmental Quality Act (CEQA) reviews of cultivation activity. Some agencies, like the SWRCB, began monitoring and permitting before AUMA passage, sending letters to suspected cultivators to comply with existing water rules immediately.

High environmental and compliance standards advanced partly as a result of state law classification of cannabis as an "agricultural product," as opposed to a "crop." This has two major effects: protections that applied to crops (e.g. Right to Farm ordinances) do not extend to cannabis; and cannabis cultivation is held to higher commercial standards than crops (affecting everything from structures to roads to accommodations for workers and the public). It is this exceptional regulation of cannabis that activates the rigorous regulation and high compliance costs around cannabis. These were major barriers for unlicensed cultivators to enter the market. In 2017, the AUMA and MCRSA were combined into a single regulatory complex through the MAUCRSA bill and, later, the regulation and oversight of the cannabis industry was consolidated from three anchoring agencies to a singular "Department of Cannabis Control."

Another important provision of Prop 64 was a time-limited protection for small farmers. The AUMA explicitly delayed the onset of "Large" cannabis cultivation licenses (over 1 acre outdoor or a half acre indoor or mixed light) for five years in order to encourage small and medium size farms to enter the licensed market. The one-acre cap derived in part from a draft Environmental Impact Review (EIR) finding that smaller cultivation gardens would reduce or avoid environmental impacts. This stipulation was generally favored by producers, who saw this as a means of protecting what had been and was still a small producer base of the cultivation sector. Between the draft EIR and the final rules, however, the cap was rendered moot by a stipulation that allowed unlimited "stacking" of 1-acre permits by individual permit holders. Farms of 100 acres or more soon entered the market, evading the five-year moratorium in Proposition 64. Many cultivators in this study cited this as a pivotal moment in their decision not to seek licensure, as they suspected regulations would favor larger players. Indeed, many still speculate about who was involved in the decision to undermine the cap and what their motives were. The California Growers Association challenged the stacking rule in a lawsuit that failed due to lack of funds. In 2018, the new regulatory apparatus was activated.

Previous Research

In 2019, researchers at UC Berkeley (including Polson, on this project) conducted a comprehensive survey of cultivator experiences of the regulatory system (Bodwitch et al 2021). We found that cultivator attitudes and social pressure were not significant in driving decisions to seek licensure. Rather, people's decisions about entering the licensing process was largely shaped by barriers to entry – their estimates of whether they could rally the resources to overcome those barriers or not. In particular, cultivation decisions revolved around three types of costs or "burdens": direct financial costs of coming into compliance and licensure; administrative costs of learning, navigating and maintaining licensure requirements; and psychological costs of entering into government regulation after having been prosecuted by the same government for generations. This last cost weighed particularly on "legacy" farmers, who had been growing for some time. Cumulative costs resulted in a tougher road to compliance for smaller farmers and those who had other livelihoods beyond cannabis, thus supporting research (Schwab et al 2019) showing that larger farms were more likely to enter the permitting process. Later, UC Berkeley research would show that larger farms and new entrants received permits (and thus state licenses) more quickly. Many who remained unlicensed perceived that their chances of earning a livelihood and of achieving security for themselves, families and farms was better in the unregulated market.

A subsequent study (Dillis et al 2021a; 2021b) showed that state regulations influenced where licensed farms were sited. New farms tended to be set up on lands that were more easily permitted and thus ecologically less sensitive, in general. Though this was true for larger, newer farms in places like Santa Barbara, Lake, and Monterrey counties, the bulk of legacy producers were located in harder-to-permit, ecologically sensitive areas of the state. (This was a legacy of prohibition, which relegated cultivation to more remote, harder-to-detect areas.) Researchers noted that cultivation was bifurcating into two models: smaller farms in areas more difficult to permit and larger farms in more easily-permitted zones.

These studies also showed an increasing tendency toward sectoral consolidation, showing that 60% of licensed farm acreage was held by 10% of licensees. Those larger farms were more likely to be run by absentee owners, marking a shift away from cultivation by land occupants. In a recently released article, Dillis, Petersen-Rockney, & Polson (2024) show that cannabis cultivation is relegated to marginal, environmentally-sensitive lands when compared with other agricultural land uses. Much of this marginalization stems for social and political forces that control the siting of cannabis farms. This marginalization often appears as outright bans, which a recent report indicated have counterproductive results on the environment, equity, and access and are often driven by competing industries, land users, governmental agencies, and anti-cannabis advocates (see Getz, Petersen-Rockney, & Polson 2023; a final report is forthcoming). A recent article by Dillis et al, (2022) based on a DCC-funded project, revealed that licensed cannabis crops are uniquely subject to fires when compared with other land uses. A report by Biber et al (2023) documents how local regulatory programs have evolved since 2018 and notes the highly uneven landscape of regulation. Their report notes that local cultivation permits have faced long wait times, variable, shifting regulations, full or nearly-full permit caps and quotas, unusual and onerous CEQA processes, and numerous terms and conditions of approval that were often irrelevant to physical sites. Together, these varied reports sketch out a landscape of cultivation: relegated to marginal, fire-prone, sensitive lands that are harder to permit; encumbered by onerous compliance and permitting processes; and tilted toward larger producers able to locate farms in areas easier to permit.

To date, estimates of unlicensed cultivators and unlicensed cultivation amounts have been notoriously difficult to estimate. Butsic et al (2018) noted that total farms, plants, and cultivated area increased significantly on the North Coast between 2012-2016, prior to Proposition 64, echoing a previous cultivation surge prior to 2008, when limits on medical cultivation were lifted (Schwab & Butsic 2017). Other estimates of unlicensed cultivation sites have been made regionally (15,000 - 30,000 in Mendocino and Humboldt, e.g.) and statewide (68,000, according to California Grower's Association in 2018). Whatever the number, it is the case that only 8,000 growers, approximately, entered the licensed system. A subsequent review by the *LA Times,* estimated that unlicensed cultivation sites outnumbered licensed farms by a factor of 10:1 (St. John 2022), with the largest post-legalization expansion of unlicensed cultivation occurring in counties with cheap land that had banned cultivation (e.g. Siskiyou, Butte, San Bernardino). While this estimate is likely an overestimate of statewide proportions (since *LA Times* worked with a limited data set of hot-spot counties), it is likely that unlicensed cultivation in 2022 was very significant. Licensed cultivation, too, produced high volumes – one consulting and research firm estimated that the top 20 firms could produce enough for California's consumption needs (HDL 2023) while commonly-cited estimates figure that California produces three times more than it needs (Schaneman 2023). Excess product in the licensed market can find its way into unlicensed markets, thus dragging the price of cannabis down across both licensed and unlicensed markets, with negative effects on all cultivators.

Accurate quantification of unlicensed cultivation is difficult to do. Currently, researchers at UC Berkeley (including Polson in this study) are working on mapping and understanding trends in the unlicensed cultivation sector. We will utilize SWRCB's aerial footage in its CannaVision program and couple this with local and state policy data and ethnographic research to understand when, where and why unlicensed cultivation declines or increases. We will also be working with state METRC data and energy use data models, to estimate total statewide production for unlicensed markets.

Accurate qualification of cultivation has also been difficult to do. Media, politicians, and others qualitatively characterize "the illegal market" as criminal, driven by cartels, polluting, dangerous, etc, yet knowledge and documentation is usually anecdotal (if not contradictory, as with accusations of "cartels," which have not been substantiated in California in any consistent way). This study systematically characterizes unlicensed cultivators and cultivation across three major study zones in order to give a more accurate characterization. Long-term ethnographic research, conducted through relations of trust and relationships, is one of the most accurate ways to assess and understand activity in illegalized or unregulated zones – much more so than suppositions based on arrest statistics, maps of cultivation sites, or inconsistent forays into guarded communities.

The State of the Cannabis Market and Cultivation Sector During the Project Period

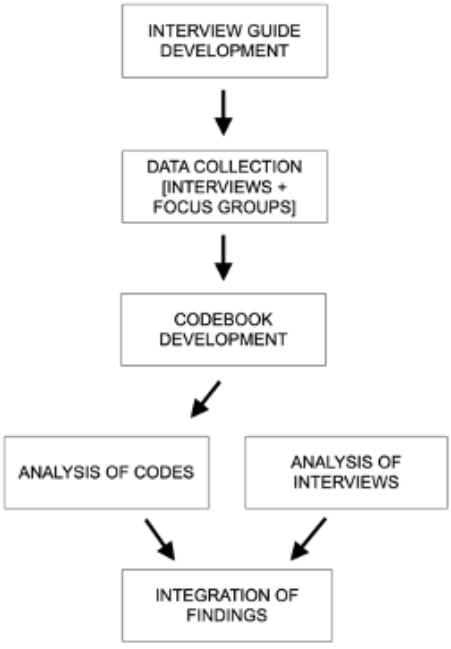
Amidst this emerging post-legalization landscape, we initiated this project analyzing the unlicensed cultivation sector. In 2020, when this project was proposed, many cultivators had yet to enter the legal system, largely perceiving it to be unfair, onerous, and expensive (Bodwitch et al 2021), while others were lingering under provisional licenses. Although cannabis supply chains were momentarily boosted by Covid-19 and stay-at-home orders, prices declined in late 2020, into 2021 and 2022. At its nadir, prices

plummeted below the cost of production. Many farmers could not find a price, as markets were saturated. Price crashes affected licensed and unlicensed cultivators alike.

By the time we finished in-person research in late 2023, the cannabis market had transformed in a number of ways. Between 2020 and 2022, sales of flower declined by almost a third in total market share, while processed products (e.g. beverages, capsules, vapes) increased. From 2023-24, flower sales decreased by another 13% (Fery 2022). The quantity of cannabis products remained relatively steady but prices continued to decline, placing average California prices per unit below those in most other states. Overall, the cannabis market contracted by nearly 8% from 2023-24. Indeed, from 2021 to 2024, total sales in California declined from $447m to $321m, over a quarter of its value (Headset 2024). Large and small firms across the supply chain folded or were bought out. Investors grew skeptical of new ventures. As one participant put it: the "spigot" of investment money was drying up. Investors also increasingly demanded returns on investment in whatever way possible. The cultivation sector has responded to these pressures in numerous ways, as shown in this report.

Methods

Figure 1. Outline of Methods



Benefitting from a cross-disciplinary approach and a previously established network of informants and key stakeholders, this study used a suite of ethnographic methods including qualitative interviews and participant observation to provide new qualitative evidence for understanding the pressures and dynamics shaping unregulated cultivation. Following the collection of data, data was coded and then analyzed [Figure 1].

Data Collection

Despite the growing scholarship on cannabis since its legalization across different states in the US, qualitative research in the nascent field of cannabis studies remains limited. Most studies on cannabis focus on consumer use including the psychosomatic and/or adverse effects of taking cannabinoids and product marketing, a result of federal funding priorities through the National Institute on Drug Abuse (NIDA), which funds much of the global research on drugs. When cultivation is researched, it largely focuses on environmental impacts. Of the 35 projects funded during the 2020 DCC grant cycle, for example, of which this project is one, nearly half, 16, focused on cannabis use and/or public health while the next most frequent theme on environmental impacts accounted for five proposals. Regarding the unlicensed cultivation sector and the broader "traditional" market, specifically, research has been limited either to remote-sensing techniques (e.g. Wang et al 2017), deductive study of downstream environmental effects (Medel 2022), and studies of licensee data (Dillis et al 2020). Few ethnographic studies have been conducted (for an exception, see Polson 2021). Law enforcement also provides a source of data but longstanding questions about reporting, bias, and estimation techniques

remain (Kalacksa & Bouchard 2011), particularly in relation to environmental impacts of cannabis cultivation (Gianotti et al 2017).

The strength of a qualitative approach is its ability to explain processes and patterns of human behavior that can be difficult to quantify. Complex phenomena such as experiences, perceptions, and values can be difficult to capture using quantitative methods. A qualitative approach allows participants themselves to explain how, why, or what they were thinking, feeling, and experiencing in response to a particular event or at a specific time (Tracy 2019). For example, qualitative methods have been used in sociological and anthropological studies to draw out understanding that drug use is a social process, shaped by a complex set of interacting factors (see Bogaert et al 2015), that may have meaning to individual users beyond their pharmacological effects (Maher and Dertadian 2018).

This study aimed to understand the experiences and perceptions of unlicensed cultivation since legalization by using qualitative methods. This gave cultivators (licensed and unlicensed) a voice to describe how legalization is affecting their lives and livelihoods and how the unlicensed market and cultivation has transformed. Using qualitative methods provided a textured portrait of how wider social and political context shaped cultivator decisions and actions. Especially for people in illegalized or unregulated realms, who are often hard-to-reach, marginalized, and necessarily defensive, ethnographic research can be useful (Adler 1990; Bogaert et al 2015). It is premised on trust, relationships, and durational research that seeks to understand a research field over time. By building numerous lines of data collection from a number of sites and participants, we aggregated experiences and narratives, looking for patterns that explain overall dynamics, as well as aberrations that indicate variation in the field. We continued research until the point of "saturation" (Saunders et al 2018) or the point when data collection becomes repetitive, indicating an ability to move to a new question, angle, or site.

In order to capture these insights, we utilized a semi-structured approach to interviewing which allowed our informants the opportunity to direct our conversations in consistent but flexible ways. We also gathered data using observation techniques – another key method of an ethnographic approach. We visited permitted and unpermitted cannabis production sites, distribution spaces, and retail locations, where we were able to better understand the production of illegal cannabis and its downstream commerce. We attended social and community events with cannabis cultivators and advocates. We spent time with key stakeholders in the cannabis academic and professional sectors (e.g. consultants) as well as larger stakeholder events, such as the State of Cannabiz B2B Expo in 2022. These visits were a key component of strengthening existing informant networks and building additional contact networks. We spent significant time with regulators and elected officials throughout California, as we sought understanding of how unlicensed cultivation was handled and perceived.

During the preparatory phase, we constructed two specialized interview guides, or templates, each of them relevant to the professional profile of a particular group of stakeholders, notably government officials and cannabis industry actors. We refined interview guides iteratively, as incoming data introduced additional avenues of inquiry and saturated others. The guides covered the following general topics: impact of prop 64 on unlicensed and licensed cultivation, generally, and individual lives and livelihoods, specifically; perceived scope and impact of legalization for wider community; individual responses, affective and action-based, and adaptations to those impacts.

Primary data collection by the co-PI's began in the Emerald Triangle in February of 2022 and ended 12 months later in Riverside and San Bernardino counties. Polson returned in Fall and Winter of 2023 for follow-up and closing interviews. Data collection was structured as a multi-sited ethnographic investigation of regional case studies of three regions: the "Emerald Triangle" (Trinity, Mendocino, Humboldt, and Lake Counties); the Sierra Foothills (Sierra, Nevada, Yuba and El Dorado Counties); and the Inland Empire (San Bernardino and Riverside Counties). Research in the Emerald Triangle took place from February to April 2022; in the Sierra Foothills from May to September 2022; and in the Inland Empire from October to December 2022, with a follow up trip by Polson in February. All three regions have dense, intensive unlicensed and licensed cultivation. There is a long but varied history of cultivation in these regions prior to and following legalization. The regions also represent a diverse range of social-ecological factors and policy approaches to cannabis cultivation, ranging from bans to intensively regulated production. Additional data was collected between the period of September 2023 and December 2023 by three consultants hired to gather information on the dynamics affecting city residents in the metropolitan regions of Sacramento, the San Francisco Bay Area, and the greater Los Angeles area that the co-PIs did not visit. This broadened selection of field sites to include specifically urban regions of the state, ensured that the sites and respondents selected for this project reflect the range of experience, actors, and geographic distribution of the state's unregulated cannabis cultivation sector. Unfortunately, research in Los Angeles was unable to be completed due to intervening circumstances.

Participant selection was initiated from a network of informants established during Dr. Polson's prior fieldwork and a database of interview volunteers from Dr. Polson's statewide cultivator survey. This method of using an "orienting figure" to provide referrals or facilitate entry into the field (Patton 2002; Vallance 2001; Weiss 1994) is well supported in the literature as a key strategy for gaining access to guarded or secretive groups. Using the snowball technique and referral sampling we built out from this "seed" sample within each region. Aside from some interviews conducted early on in the Emerald Triangle, Drs. Polson and Laudati conducted interviews and observation sessions separately, in order to gather data from a greater number of informants than would have been feasible if interviews had been done together. For substantial periods of research, we worked in different locales to build non-overlapping contacts. Collectively, we spent approximately 5-6 months in each region, with each Co-PI spending roughly 2-3 months each in each of the three regions. This longer timeframe was necessary given that it takes time to establish contacts and then gain permission to conduct interviews with people, particularly when interviewing people on sensitive topics and/or who are engaged in secretive work (Monahan and Fisher 2015). The interviews conducted by each consultant were also based on existing networks with known cannabis industry actors.

A total of 139 conversations were conducted among both co-PIs [see Table 1] while two outside consultants gathered data from 16 additional conversations in the San Francisco Bay Area and Sacramento. The 16 additional conversations included 1 focus group with consumers from Richmond and 15 individual interviews with distributors, cultivators, and retailers (9 from Sacramento and 6 from Richmond). With only a few exceptions, the 137 conversations were recorded and transcribed. The majority of these conversations were gathered through in-depth semi-structured interviews. Most of these interviews involved a single informant and a small number included a second or third informant that served as business or intimate partners to our initial informant. Focus groups were used infrequently when speaking with several members (5+) of a particular group. Both interviews and focus groups ranged from

1 hour to 6+ hours in length, with most interviews averaging around 3 hours for individuals working within the industry and 1.5 hours with government officials.

Table 1. Individual Interview Breakdown by Region and Informant Type

Region	Regional Totals	Informant Sub-Groups				
		Industry Actors	State Agents	Advocates	Ancillary Actors	Anti-Cannabis Focus Group
Inland Empire	54	15	25	9	3	2
Emerald Triangle	42	28	8	2	3	1
Sierra Foothills	43	35	3	1	3	1

Informants included four main sub-groups of informants: industry actors, state agents, advocates, ancillary actors, and anti-cannabis group members. Industry actors included all informants that are involved in the cannabis industry including cultivators, retailers, cannabis farm workers and managers. It is important to note that the majority of our informants were from the cultivation arm of the industry and among these, the majority of our informants had been cultivating prior to the implementation of Prop 64 and many of these would identify themselves as legacy farmers. Government agents included those hired to serve government oversight of the industry including code enforcement, agricultural commissioners, city and county planners, tax administrators, law enforcement officers, and members of the board of supervisors. Advocates included those advocating on behalf of a pro-cannabis platform but who were not directly involved in the industry, such as cannabis alliance group members and medical cannabis activists. Ancillary actors included consultants, owners of hydroponic/grow stores, brokers, and lawyers. Focus groups were used to gather the views and perspectives of 3 anti-cannabis groups and 1 group of urban consumers. We cast a wide net of informants for two reasons. First, as the focus and aim of our research is to understand the unregulated cultivation sector, this required building relationships and levels of trust with licensed networks and actors to gain access to unpermitted growers. Second, these contacts were essential for understanding the broader contexts, discourses, and influences affecting and shaping unlicensed cultivation. Phrased differently, to understand unlicensed cultivation requires inquiry into both the perspectives and experiences of unlicensed cultivators *and* into how unlicensed cultivation is discussed, approached, intervened in, and viewed by numerous actors, inside and outside the (unlicensed) cannabis cultivation sector.

Prior to beginning fieldwork, ethical approval was granted by the University of California-Berkeley Institutional Review Board (Protocol # 2021-11-14802). All research was conducted according to accepted norms for ethical research, including the documentation of informed consent; the confidentiality of participation; and the anonymization of statements provided. We exceeded these normal stipulations by acquiring a Certificate of Confidentiality from the National Institute on Drug Abuse (NIDA). The certificate ensures that findings from the study cannot be subpoenaed or demanded by government agencies or other entities, thus ensuring the confidentiality and safety of participants.

Data Analysis

Following the collection of data, we used a two-pronged approach to analyze data. First, we directly analyzed the qualitative data including field notes, unrecorded conversations, as well as interview notes. This approach relied on the co-PIs returning to their interview notes, identifying key themes that emerged from the interviews and noting answers to the central questions of this research project. Second, we developed and applied a codebook to assist with the analysis of the recorded interviews. The development of codes was completed using a combination of an “open coding” and a “selective coding” approach.

Initial codes were established using a selective coding approach, or an approach that generated codes we knew would be key in structuring data. These codes were based on the central questions of the research project and according to the research team's theoretical interests. Examples of these codes includes "regulation," "enforcement," "cultivation," "transition in/out" of the cultivation sector, and "traffic between il/legal markets." Codes developed in accordance with individual researchers' interests included many of the phenomenological codes used including, "violence" and "accumulation and dispossession." Additional codes were developed using an "open coding" approach that allowed for the emergence of new themes and topics that emerged directly from the data.

A code was attributed to sentences and short passages [to capture the full breadth or the context within which a particular code was expressed], in order to categorize the data according to their meaning and referenced action. Our first step in this process was submitting our recorded conversations through a secure service to transcribe interviews that had been recorded. The online software *HappyScribe.com* was used to support the transcription. To ensure transcripts were complete, accurate, and captured expressions of any emotional resonances available through the recorded interviews, we hired undergraduate research assistants to confirm and complete the outputs of the computer-generated transcripts. Seven undergraduate students hired between January 2023 and September 2023 were tasked with ensuring the validity of the computer-generated transcripts. This entailed: ensuring the correct speaker was identified to the relevant spoken passages, the number of speakers identified in any transcribed conversation was correct, and that transcribed passages were as complete as possible and matched the actual recorded conversation, including correcting words and places that the computer-generated service missed or mis-identified. The transcription work by undergraduate research assistants was done in collaboration with the Co-PI's who provided guidance and feedback throughout the transcription process. After a first round of transcriptions were completed, 4 graduate research assistants were hired to assist with the coding process. Transcripts were coded and analyzed using the Dedoose software package, Version 9.0.107. The final list of codes comprised 11 parent codes and 74 child sub-codes (Figure 2). The Co-PIs worked closely with the graduate research assistants to ensure that the scope of each individual code was clear and that the application of codes was consistent. Given that transcriptions were slowing the process of coding as coding relied on transcripts to be finalized before moving to coding, we ended up gaining a sample of approximately 30% of coded interviews from each region.

Throughout both the period of collection of data and the analysis of the data collected, both co-PIS met often and in addition worked closely with the PI Nathan Sayre to discuss emergent findings and adjust research questions or analytic themes as needed. The co-PIs also sought to draw additional feedback from the wider community of cannabis scholars through presentations given at both campus-supported meetings organized by the University of California at Berkeley's Cannabis Research Center, as well as the presentation of findings at regional disciplinary conferences (Dr. Polson).

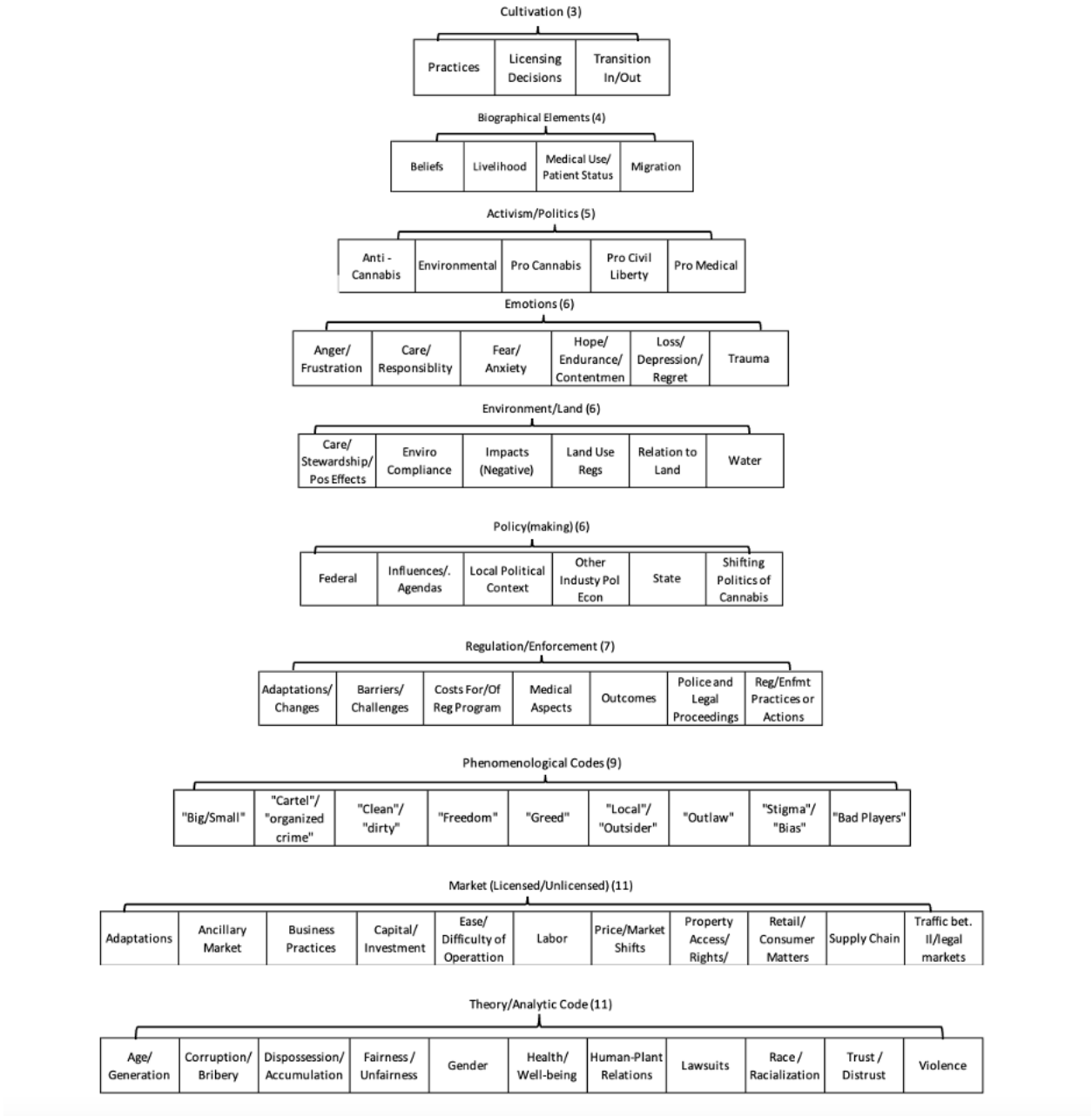


Figure 2. Codes by Parent Category and Child Sub-Codes

Findings

Current Unlicensed Cultivation Sector

Local cultivation bans and restrictive regulations preclude licensed cultivation – and grow the ranks of the unlicensed – in most of California

Over two-thirds of California's localities ban cultivation. Additionally, permit counties place many zoning and permitting restrictions on cultivation, well beyond state requirements, excluding much of the rest of California's territory and population from licensed cultivation. These exclusions grow the ranks for the unlicensed cultivation sector, as residents are categorically denied access to legal market operation and even the ability to cultivate for personal and medical consumption. Tens of thousands of cultivators who were growing prior to 2018 are categorically excluded through these bans and regulations.

While some localities ban and restrict cultivation in ways consistent with other agriculture and land uses, many others do so based on a desire to stop cultivation altogether. However, bans and restrictions do not stop cultivation, except in temporary, localized ways during expensive eradication campaigns. Instead, local bans push cultivators to evade enforcement, often with harmful consequences, while forfeiting the ability to regulate cannabis explicitly. When a pathway toward licensed cultivation is foreclosed, cultivators continue to cultivate unless their household needs are otherwise met or it is not economically viable to do so. Meanwhile, enforcement against cultivation puts cultivators in financial and legal jeopardy, often worsening the life conditions of those who are stuck in the unlicensed market with few, or no, other livelihood options. We illustrate this across several cases.

Trinity County initially embraced cultivation permits and was supported by a grassroots effort of cultivators to create a fair, accessible system. As the county moved forward, opposition arose from residential groups arguing that the county had not conducted a proper CEQA review. The resulting lawsuit drained county resources, instigated the suspension of permitting, and ushered in the formation of "opt-out" zones for county areas where (some) residents did not desire cultivation. Cultivators were tasked with completing an onerous CEQA process for each farm, and the county was hamstrung by administering these new requirements with limited staff. Cultivators with state licenses could not legally grow since local permits were suspended, resulting in a gray market cultivation sector, where some continued cultivation while others absorbed financial losses or left the market. Meanwhile, the county faced lawsuits from larger operators challenging restrictions on out-of-county operators and acreage caps. The lawsuit allegedly resulted from a litigation strategy targeting Trinity because of its lack of financial resources to defend itself. For a county in which livelihoods are scarce, cannabis was one of very few pathways to economic security. With few other options, many continue to cultivate, albeit outside of a narrowed, precarious licensing pathway.

In *Humboldt*, the first round of county regulations was suspended after a lawsuit from environmentalists over CEQA requirements. The subsequent regulatory system erected more barriers and compliance requirements, which significantly narrowed the licensure pathway for many. An ironic result of this new system was that larger projects and projects that had political sponsors appeared to get preferential treatment (perceptions of larger projects being favored was confirmed by subsequent study; Biber et al 2023), thus inciting accusations and dissatisfaction among most cultivators against the county. The county

initiated an intensive satellite surveillance program that proactively pursued licensed and unlicensed producers, resulting in lost trust, mistaken citations, and what one lawsuit would later identify as a lack of "due process." The county simultaneously lifted limits on citation amounts, resulting in a number of expensive liens that put cultivators' properties in jeopardy. In the past two years, anti-cannabis residential groups rallied to place even more restrictions on cultivation in order to combat quality-of-life violations and protect the environment, but the measure was defeated. This confirmed a prevailing sense that regulations were already significant, the licensed industry was regulated enough, and that unlicensed cultivation was not as big a problem as it had once been. Shifting regulations, perceptions of unfairness, and anti-cannabis measures were interpreted by unlicensed cultivators as reasons for avoiding licensure.

Riverside County had initially instituted a ban against commercial cannabis in the unincorporated areas of the county, including Riverside city itself. The county recently allowed for a cultivation program but its slow roll out together with an aggressive enforcement program by the current sheriff have contributed to an overall perception of the county as being anti-cannabis. For example, the Board of Supervisors were seen as "dragging their feet" to legalize cannabis following the passage of Prop 64. It was not until December 23rd 2018 that Ordinance No. 348.4898 took effect and legalized the cultivation of commercial cannabis in the county. The slow adoption of permitted cultivation was even remarked upon by members of the Board of Supervisors who noted that "[Riverside County] had a "crawl before we walk" approach". Both county government staff and cannabis activists in the area noted that it was "a fight" to get folks onboard even with medical licenses at the beginning. Even with the passage of Ordinance No. 348.4898, however, only a single permit for cultivation has been approved, and as of this writing, the permitted grow has not begun cultivation. Further conversations with government officials revealed the role that bureaucracy played in limiting the number of permits that were applied for, were successful, and were ultimately permitted. More recently, in March of 2023, the city of Riverside opened its permitting process for retail and research but cultivation within city-limits remains illegal.

Other cases of restrictive and unstable regulations include:

- *Calaveras County* created a regulatory program that was later suspended by the county, after significant protest from some residents. Eventually a stricter regulatory program was implemented but many cultivators dropped out of the permitting system due to expensive, heightened requirements and limited eligibility.
- *Mendocino County* created a regulatory program but was stymied in its implementation primarily through lawsuits regarding CEQA processes. During our research, many farmers remained in limbo without local permits, effectively rendering most farmers unlicensed.
- *El Dorado County* passed a permit ordinance but before any permits were granted, law enforcement torpedoed the program by refusing to conduct background checks. This was largely seen as revenge for the shooting of an officer on a cannabis farm. All cultivators (excluding one, who litigated his way through the permitting process) were rendered unlicensed by the county's inability to permit. These unlicensed cultivators have either left the county or employed new tactics to conceal cultivation.
- *Sierra County* has a medical cultivation program but rejected adult-use cultivation. The Sheriff, however, has allegedly disregarded medical cultivation allowances and has raided numerous county-compliant cultivators.

- *Hesperia*, a city in San Bernardino, also allowed medical delivery to operate in the city but after years of escalating taxation and restrictive regulation, suspended the program altogether, leaving operators facing bankruptcy and an inability to sell their license or business.
- For years, *Lake County* had a restrictive, punitive and controversial approach to (medical and prohibited) cannabis cultivation, leading the state in eradication and resisting regulations. In 2018, however, it reversed course and welcomed (primarily) large-scale cannabis cultivation. Small, legacy, local, low-income and disadvantaged growers have had difficulty accessing a permit system seemingly built for large operations. Correspondingly, we spoke with many residents and officials confirming the persistent presence of unlicensed cultivation.

Cases of counties banning cultivation with counterproductive results include:

- *Yuba County* passed a ban in 2015 and later declared a state of emergency around cultivation to garner more resources as it aggressively pursued unlicensed cultivators. Many cultivators simply moved to neighboring counties. Resources and the will to pursue cultivators flagged during Covid and unlicensed production has resumed, albeit within certain parameters signaled by targeted enforcement (e.g. avoidance of water diversion, tree cutting, or large gardens).
- *San Bernardino County* banned cultivation in the early 2010s. It mostly targeted unlicensed producers in urban, indoor sites until around 2019 when eradication efforts in neighboring counties pushed cultivation outdoors into the rural High Desert, where land was cheap. The county responded with a sweeping, resource-intensive eradication campaign that succeeded in dislocating and delaying cultivation, though evidence at the conclusion of research suggested cultivators will continue planting.
- *Siskiyou* instituted a ban in 2015, coinciding with the emergence of cultivation among ethnically Hmong people in the county's central agricultural valleys. The Sheriff took aggressive actions to stymie potential regulations and cultivation allowances and subsequently targeted areas with Hmong and other Asian cultivators, leading to allegations of racism and iterative lawsuits. The county has innovated numerous methods to impose criminal and financial sanctions, thus impoverishing and marginalizing this community further. In response, cultivators have entrenched themselves deeper and tactically shifted cultivation practices to avoid detection.
- *Napa County* instituted a ban and is one case where unlicensed cultivation appears to have largely disappeared. Subsequent analysis and comparison suggests this abatement is likely due to high prices of land and labor and allowances for personal cultivation, rather than the efficacy or intensity of enforcement. Please see report to the DCC from Petersen-Rockney, Polson, & Getz (forthcoming) on bans for more information.

Unlicensed cannabis cultivation provides opportunities for livelihoods and autonomy, especially in under-resourced California communities

Unlicensed cannabis cultivation continues to provide economic opportunities, albeit risky and precarious ones, for many Californians. It does not generally require expensive capital investments or educational credentials. To the contrary, training and education is often peer-to-peer and localized. Oftentimes cultivators worked through informal apprenticeships, as they obtained jobs, like trimmers, garden or property managers, transporters, etc., to learn the skills and save enough to start their own gardens. It often attracts people who are resistant to, challenged by, or excluded from traditional workplaces, for

sundry reasons like prior felonies or mental and physical conditions. Many participants reported making a living that would have otherwise been impossible with their status (educational, citizenship, gender, rural or urban location, etc). Cannabis income allowed them to attain various measures of autonomy: to raise their children in ways they wanted (i.e. at home, without childcare); to own their own land or spend time in nature; to be part of tight-knit communities. Some cherished a kind of "outlaw" value that was frequently described as a love for independence, freedom, or "libertarian" values that reflect a desire to be independent, in control of how one's energy/labor is expended, and able to avoid hierarchies that subordinate one's will. Most unlicensed cultivators have seen their livelihoods become less stable in recent years (see below), but some still earn stable livelihoods, often at small scales, with established brokers and consumer outlets, and short supply chains that allow them to retain maximum value. Small scale farms often allowed cultivators to earn premium prices for unique and meticulously cultivated cannabis produced with minimal labor inputs beyond the farmer.

Cultivation is an important livelihood for people of color (POC) and differently-abled people

Cultivation was and is an important resource for people of color (POC; immigrant and non-immigrant). despite it being dominated in most rural areas by white growers. Because POC cultivators in rural areas often differed from the majority-white areas they were in, some felt they had to keep their cultivation more secret and tightly guarded than others, thus limiting the community resources they were able to draw upon. One farmer found himself raided by cops when, as one of the few POC cultivators in the county, he advocated for policy changes to allow cultivation. POC often relied on communal networks to navigate retail markets and supply chains predominantly run by white people. A few participants noted that many POC consumers are often low-income, cannot afford dispensary prices, or have suspicion of formal institutions and surveillance after the drug war, thus limiting the formation of POC consumer bases in the legal market. This has helped to create "seshes," or new informal markets, primarily in urban areas, largely for lower-income people of color, where consumers are able to purchase cheaper product directly from producers or distribution networks.

Access to the legal cannabis market, as cultivators or distributors or both, was central to urban POC respondent's retelling of their ability to earn a livelihood. A common thread among respondents from the East Bay was that equity grants were key to their ability to access the legal industry. Many credited holding a legal license as a competitive advantage that increased "financial stability" and opened up "new revenue streams." Moreso, respondents noted that entering the legal market "opened up the lane for people [previously working on the streets] who want to get on the other side the right way." This shift was particularly noteworthy for black industry members who recognize that the industry overall, "it's a white dominated industry" and thus gaining entry into the market for "people that look like me, that it's plausible and inspiring" to the wider black community. In this way, legalization was seen as "necessary, it has to happen, obviously because it had no business being prohibited in the first place. So, we have to go through this process to rectify the injustice that was made in the beginning [that] targeted people of color." Earning a livelihood through the very industry that many black Americans were harmed under for respondents of the East Bay was intimately connected.

Cultivation provided housing and income security for those with disabilities, and a workplace for those with mental illness. One houseless man traded his cultivation skills for housing and used the medicine he produced to self-manage his mental illness. Another man found a job in cannabis cultivation after running

away from home. Numerous people, especially those who were older, had moved to California to cultivate their own cannabis medicine. They often lived on retirement or disability and would sometimes send cannabis back to the places from which they came in order to make a supplemental income. Many felt they would be unable to function in formal workplaces but cultivation provided them a pace and level of activity that was attainable, such as one man with Attention Deficit Disorder (ADD), another with Post-Traumatic Stress Disorder (PTSD), and a third who was elderly. In contrast, we heard consistent reports of the therapeutic value not only of cannabis consumption but of cultivation itself, where people could work at their homes and spend time outdoors.

Prices in the cannabis cultivation sector have collapsed, pushing many cultivators out of business and into precarious, vulnerable conditions

The price crash of 2021-2023 pushed many unlicensed cultivators out of business. Some transitioned from cultivation incomes that could range into six figures into low-income jobs as grocery store clerks, security guards, contractors, highway flaggers, or casual laborers. While unlicensed cannabis afforded a livelihood, it did not prepare many for post-cannabis employment. This is especially true in rural places where agricultural, construction, and contracting skills – the skills cultivators are left with – are in high supply. One former cultivator reported going from a six-figure salary to living on charity food boxes. He lost 40 pounds since closing down his farms on a "poverty diet." As they lost their livelihoods, cultivators occasionally reported (for self and others) depression, substance use, and troubles with family and friends. Occasionally, a story of a suicide of a cultivator would ricochet through communities as a potential future for others and a symbol of generalized desperation and loss of meaning. Many mourned a prior sense of solidarity, support, and cultural vibrancy that had surrounded cannabis cultivating communities. Due to various pressures of enforcement, regulation, and market fluctuation, many expressed sadness as they witnessed the dissolution of these communities (often quite literally, as people left and sold properties). In rural areas, the collapse of cultivation has particularly impacted whites, who comprise the vast majority of cultivators. The collapse of cultivation will likely have derivative impacts on rural, white poverty, especially in cultivation-dense areas like the North Coast and Sierra Foothills and may have political ramifications as people blame the government for their troubles as they attempt to make sense of their grievances.

Predatory, opportunistic actors exploit unlicensed and licensed cultivators

Unlicensed actors are liable to be targeted by opportunists. According to one official, several growers have been lured into "predatory," extortionate and unfairly-structured land deals with opaque LLCs that virtually guarantee farmer failure, after which the previous owner takes possession of the property again, only to repeat the cycle. Alternative mechanisms for property financing are needed because of exclusion from normal lending institutions (for both licensed and unlicensed cultivators). Officials can sometimes take advantage of unlicensed growers, as with police in Rohnert Park and Yuba County that were charged with shake-downs of unlicensed producers for product and cash. After police stymied a regulatory program in El Dorado County, they engaged in intensive anti-cannabis enforcement (e.g. surveillance, profiling, and proactive pursuit of people suspected of cultivation) that many cultivators experienced as highly unfair, alleging that police commonly took cash, product and belongings illegally, believing that unlicensed producers would not report it for fear of further prosecution.

On the licensed side, a Humboldt compliance official organized and accepted bribes from potential licensees, while officials in Adelanto and San Bernardino were charged with pay-to-play schemes. While these cases are exceptional (though somewhat common, as numerous other instances of corruption attest; Elmahrek 2023), they inflame tensions between government and cultivators. One journalist (Elmahrek 2023) suggested that corruption is an outcome of local control powers, which grant politicians the power to grant or deny licenses as they see fit. This theory fit allegations and sentiments we encountered throughout the state.

Relation of Licensed and Unlicensed Sectors

Boundaries between the licensed and unlicensed markets are porous

Moving product between licensed and unlicensed markets occurred in numerous ways. Participants commonly spoke of a "front" and "back" door to licensed sites. METRC (California's track-and-trace system) could be manipulated to over- or under-account for product at various points along the supply chain. "Burner" distribution sites were commonly set up and then closed to move product out of the licensed system, as were declarations of theft or ruined product by distributors and retailers. According to one cultivator, "it's like [distributors have] two phones – one is the black, and one is the white, and they're brokering both sides." Expired product could also be moved into unlicensed markets by retailers and distributors. We heard several reports of cultivators growing cannabis, bound for unlicensed markets, under hemp permits. During our research we noted instances when legal product or packaging from California was found on open markets in other states. Some licensed companies were known to sell packaging in other states as a way of building brands. While leakage generally went from legal to unlicensed, sometimes unsellable unlicensed product would be smuggled into the licensed market for sale. This was particularly true for unprocessed bulk product directed toward legal manufacturing in last ditch efforts by unlicensed growers to sell product, even at highly discounted rates. One cultivator contended that Proposition 64 actually *expanded* "illegal" markets when it collapsed the robust medical market, enabled a supply glut and price drop, and created a profitability crisis in the legal market that necessitated unlicensed sales to avoid insolvency.

Legacy growers used funds from unlicensed cultivation to enter the licensed market

Virtually all licensed growers who had been in the legacy, or pre-existing, market used income gained from prior cultivation to pay for permits, fees, inspections, compliance, and licensing. Some called this the "bank of the stump" (i.e. money that had been hidden or buried) that financed their transition to legality. For many, this was the only source of financing they could secure in the absence of actual banks, which prohibit lending to cannabis operations. They utilized their cash resources to pay fees, afford permits, hire contractors and consultants, and transform their sites for compliant, legal operation. These historically-accrued earnings were spent down in the first few years of becoming licensed, with the result that by 2022 nearly all cultivators had no prior savings from unlicensed cultivation left. (There was one exception we found from a relatively larger grower, who estimated he had 18 months before his savings were gone. He was planning on delaying retirement for at least five years as he attempted to recuperate economic stability). At an aggregate level, this represents a significant transfer of wealth from legacy cultivators to the government and to formal market actors, like contractors and consultants.

Collapsing prices and high regulatory costs pushed many licensed cultivators to rely on the unlicensed market

At the moment when licensed cultivators had invested most savings into entering the regulated market, wholesale cannabis prices crashed and provisional licenses ended. Some cultivators dropped out of the licensed market altogether, either turning back to the unlicensed market, leaving the state, or turning to other jobs, usually at lower wages and in more precarious situations. Other licensed growers retained (unprofitable) licensed sites but began growing unlicensed cash crops on other parts of their properties or on other parcels. Some under-reported their harvest and sent the excess (often more premium product) into the unlicensed market. Unlicensed cultivation profits subsidized cultivators for the regulatory costs and losses of legal market operation. Cultivators that grew or sold without licenses credited this market with keeping them financially afloat amidst price drops and high regulatory burdens. Tacking between the licensed and unlicensed markets enables viability in a widespread way suggests a fundamental dysfunction of regulated markets from the financial perspective of a cultivator. Low prices and high costs were specifically impactful for cannabis cultivators, as cannabis was not stabilized by policies (e.g. credit programs) other agricultural crops take for granted.

Tacking between the licensed and unlicensed markets was likely more common during our research period, when prices dropped below the cost of production. Licensed and unlicensed producers alike sought sales and profits in whichever market could provide them. Returning to or persisting in the unlicensed market meant cultivators could access an entire set of pre-existing market contacts that legal operation disallowed. This was especially critical when cultivators could not find any buyers during the price crash. As prices dropped and the legal market was saturated, only the most "perfect" cannabis could be sold, according to several cultivators, meaning that the rest either expired, was sold at lower cost for processing, or was sold onto unlicensed markets. One cultivator simply gave away his product; another burned it in his front yard in protest; another waited a year until it was about to expire and then traded it for manufactured goods. By the end of our research, prices were recovering more quickly in the unlicensed market, making it a more desirable outlet for sales.

Overproduction, overinvestment, and insufficient sales outlets caused prices to collapse across licensed and unlicensed markets

The market crash of wholesale cannabis can be understood from several angles. First, it reflected a crisis of overproduction. With no controls on supply, licensed cultivators were free to produce as much cannabis as their permitted acreage would allow, while unlicensed producers continued as well. Just a handful of California's largest farms could produce enough cannabis to provide California's entire market (HDL 2023), meaning the licensed market *alone* produces too much for California. Oregon's hemp laws created a loophole for large quantities of cannabis to be grown, much of which flooded into California's market, while Oklahoma's loosely regulated market, with low barriers to entry, produced large excesses, much of which flowed back into California. Many California cultivators had fled to Oregon and Oklahoma when licensed cultivation became difficult in California, so it is little surprise that excess product made its way back to California via existing social-economic networks of former California operators. An aggravating factor for this overproduction may have been the cessation of provisional licenses in 2022 for most licensee types, which led to some licensees to grow as much as possible in anticipation of failure. folding. Though much is made of the fact that the "illegal market" was the cause

of overproduction and sinking prices, it was *legal, licensed* production that appeared to be over-producing.

Another factor was overinvestment. Some new, investor-backed cultivators entered the licensed cannabis market aggressively, aiming to build out capacity and capture as much market share as possible. Eventually, however, their backers began demanded return-on-investment and pushed for full use of licensed capacity, leading to oversupply and a strong incentive to make sales in the illegal market. The licensed market may have, then, dragged down prices in the unlicensed market, rather than the reverse, as they flooded unlicensed markets with legal (but unsellable) product.

Exacerbating overinvestment was "underconsumption" – too few licensed retail outlets to clear the market. This is a problem in California because most localities have banned cannabis retail, restricted it to select areas, and/or capped their numbers. Lack of licensed retailers increased pressure on licensed producers to find other outlets for their product and also created conditions for a new class of informal, unlicensed retailers to appear.

Unlicensed production has seen several localized booms since legalization, leading some officials to blame declining legal consequences for its growth. However, these localized post-legalization booms have primarily been in ban counties like Siskiyou, Butte, Riverside (pre-2020), and Los Angeles with cheap, rural, unincorporated land, suggesting that it is not declining consequences but declining prices and cheap real estate that drive these booms. Most of this product will not compete directly with legal product in licensed retail establishments, though it does supply unlicensed, low-cost markets. This may divert consumers from the licensed market or it may be a parallel market that simply makes more absolute consumption possible and has minimal effect on regulated markets. Further study would be required.

Licensed cultivation often relies on unregulated labor markets

Licensed farms often depended upon informal labor, citing the regulatory expenses of formal employees as a barrier. Workers often labored on both licensed and unlicensed sites. Workers not only required taxes and insurance costs but also facilities and accommodations that are not typical of any other agricultural crop (e.g. ADA compliant bathrooms). While some employment costs are necessary, the exceptional categorization of cannabis as a "product" not a "crop" categorizes farm laborers as requiring accommodations on par with white collar, professional employees. Most farmers cannot afford and farms are not equipped to affordably employ formal market workers and remain profitable. These high costs led cultivators to avoid formal employment offers and to rely on informal workers for processing and farming labor, who were significantly cheaper. Farmers can legally contract with Farm Labor Contractors, though few officially work cannabis crops. While these informal jobs were important to those that held them, they were also tenuous and unregulated and could lead to unsafe or exploitative conditions.

Licensed cultivation depends on knowledge from the unlicensed market and cultivators

We fielded several reports of licensed cultivation sites depending on the expertise of former growers from the unlicensed market. This expertise was gleaned from workers and, in two cases, codified into Standard Operating Procedures (SOPs), after which the expert employees were fired or marginalized with aims to encourage resignation. Employees with expertise were more valuable and commanded higher wages than employees who could be employed to perform standardized practices. In a few instances, employees with expertise quit their positions, after feeling exploited, and returned to unlicensed operations. They

considered unlicensed operations more fair and protective of their expertise built over years, though they valued the stability and benefits of legal work. The extraction of expertise extended also to cannabis genetics. Breeders who had developed strains pre-legalization were legally unable to patent and protect their strains, generally. Legalization had no mechanisms to ensure property protection, allowing for genetics to be appropriated by others.

Immigrants and immigrant communities are increasingly important actors in cannabis cultivation

Immigrants who had precarious relations to the formal workforce were able to find (a risky) stability in unlicensed cultivation. They often relied on ethnic community to provide a level of security that white and US-citizen growers could take for granted. Unlike US citizens, these immigrants often continue working in cannabis, even as prices decline and livelihoods become meager. Indeed, even with falling wages, cannabis cultivation or wage work could still provide income at levels above other formal market options available to immigrants in agriculture and service sectors. As those with other, better options left cultivation amidst the market crash, we noted that immigrants (with varying legal status) and members of ethnic communities were beginning or continuing to cultivate, often in ways that bucked the trend of communal disintegration. In fact, some ethnic communities of cultivators seem to have intensified cohesion as they persist in the unlicensed sector, albeit at lower revenue levels. Communal organization helped to defray and collectivize costs, support individuals who might otherwise fail, and spread information at crucial moments (e.g of coming enforcement action) and for important purposes (e.g. pest or water management).

These ethnic networks were protective, supportive and sometimes extended down the supply chain to sales destinations in the legal market, out of state, and even out of the country. In two counties, Southeast and East Asian cultivators formed tight-knit communities that educated residents on how to reduce risk of enforcement and formed systems for mutual protection from enforcers and thieves. Sometimes these communities constructed their own cultural and commercial centers for residents and workers. Symmetrical patterns were observed with Central American workers in other counties. Ethnic organization, as discussed above, was key for reinstituting trust and community for vulnerable individuals, who were often low-income, non-English speakers, and/or undocumented. They were also useful for collective protection, especially in predominantly white areas, where non-white individuals were more likely to draw (racialized) attention. Ethnic organization also provided limited access to property, financing, or work that was otherwise hard to access. People were offered and made available opportunities within ethnic networks that were not otherwise available to them in the formal economy. However, some worried these ethnic networks could be exploitative. It was unclear to us whether this kind of exploitation differed in any substantial way from existing farm labor contracting systems, low-wage service jobs, or ethnically-organized formal market businesses. The only difference we could detect was its unregulated operation, which can result in exploitation, support, or other outcomes dependent upon communally-established dynamics (e.g Gomberg-Muñoz 2010; Kwong 2002).

Wages in the cannabis cultivation sector have dropped precipitously

Since legalization, wages in the unlicensed cannabis cultivation sector for trimmers (processors) have plummeted by up to 75%. Perquisites, like room, board and entertainment, have dwindled or disappeared. Some workers reported having to take on more jobs to sustain their income, even working to the point

that their backs, arms, necks, shoulders and hands gave out. This was a cause for concern among many unlicensed employers (and licensed ones; see above), who were upset at how falling wages and declining security and benefits were undermining the relationship with their workers. Several farmers had years-long relationships with workers and considered them as "family." Before, some care (or at least shared risk that bound workers and employers together) had been structured into employment relations. As that risk lessened with legalization, the obligation of employers toward employees lessened. Equally important, as risks lessened and mass legal cultivation began, prices dropped and placed downward cost pressure on all inputs, including labor. Intensified forms of exploitation have emerged, especially for undocumented and ethnic workers who replaced higher-paid, often white workers. According to several participants, workplaces have become less caring, more alienating, and wage theft has become more common. Several farmers turned to out-of-area labor contractors, who organized low-wage, ethnically-marked, and undocumented workers to process product for market. One operator expressed pride in paying migrant workers weekly but noted that he knows others that missed payments to their workers for months. While this is a violation between employer and employee, this farmer argued it is structured by low prices and, for licensed cultivators, high regulatory costs, making wages for workers and farmer livelihoods a zero-sum choice. Many cultivators have stopped hiring workers at all and internalized labor costs to themselves or to their increasingly-stressed family systems.

Legalization has transformed medical cannabis cultivation systems

Consistently, unlicensed growers expressed regret over the loss of a cultivation system oriented around medicine and healing and the social values and camaraderie it supported. Even for growers that were not themselves patients, medical cultivation provided a rubric of meaning and social purpose. Growers donated product to collectives, organized patient collectives, and produced specialized products, like balms, salves, and concentrates for medicinal application. It was "medicine for the people," as one cultivator put it. The idea of "medicine" for cultivators was expansive – cannabis not only treated physical ailments but it could become a spiritual aide for healing hearts and souls, communities injured by the drug war, and revivifying the substance of community, which they saw as threatened in contemporary culture. The lateral networks and collectives, the giving, sharing, and healing, referenced varying communal histories: countercultural, back-to-the-land ideals of communal support and ecological healing; histories of immigration and communal solidarity; familial traditions of folk remedies and criminalized solidarity; and collective resilience in the face of racism and exclusion. Cultivators envisioned their farming as a way of healing lands injured by extractionist industry (i.e. timber and mining), an alternative to toxic agricultural pursuits, and a way of making place. Now, as one cultivator said of medical cannabis, "the dream is dead." Values of giving, sharing, collectivizing, and healing, in the worldview of many unlicensed cultivators, is being eclipsed by profit motives that cause competition, harm, and degradation.

Legalization has shifted pricing power away from cultivators (licensed and unlicensed) and toward other market actors

As the price of cannabis dropped and farmers became more desperate amidst market gluts in 2021-23, farmers were subordinated in new ways to the whims and bargaining power of buyers. This trend has been occurring at least since the late 2000s, since the expansion of the medical cannabis supply chain to include a new set of supply chain actors that consume an increasing amount of the product's profit margin (e.g. tax professionals, security guards, dispensary landlords). In various waves of speculative

overproduction (e.g. 2009-10, 2017, 2021-23), the pricing power of producers has plummeted, resulting in low farm-gate or wholesale prices to producers despite consistent retail prices to consumers. This indicates a reallocation of profit, or surplus, along the supply chain away from producers and toward down-stream supply chain actors. In these market conditions producers underbid one another in a buyer's market, thus eroding prices for producers. From once commanding $4,000-5,000 per pound, the pricing power of cultivators had plummeted by over 90% in 2022 to an average of $300-$400 to people we spoke with (excluding people that could not sell at all).

As cultivators lost pricing power, other market actors acquired it. During our study period, distributors could decide whether to buy cannabis and often could name their price to producers, since there was so much product. Distributors exerted control over producers even after prices were negotiated, by deciding which product to promote and which to passively make available. Mandatory distribution frustrated many farmers, as they were tasked with marketing their own product, which many could not manage, especially if they were smaller and more remote. Several growers reported their product sitting with distributors until it expired, unsold. Several reports also came of failed distributors, who simply closed shop, leaving farmers without payment or product. Lawsuits were too costly to pursue for these farmers, who simply walked away from lost product. Finally, farmers were the last to get paid and often had to advance their product to distributors, who would only pay farmers once they were paid by retailers. Historically, unlicensed cultivators rarely, if ever, were required to advance their product. Unsurprisingly, distrust and resentment emerged between legal distributors and producers.

It was retailers, however, that held pricing power in the legal supply chain. Only when retailers issued payments to distributors would distributors, in turn, pay farmers. Further, retailers were the ones making decisions about which products to stock and which to reject. Many reference "consumer taste" as the guide of stocking decisions, yet many farmers questioned why only one type of consumer seemed to be privileged by retailers – namely, consumers seeking the highest potency, fad strains, rather than a wider genetic or medicinal diversity. There is virtually no market space for sun-grown, environmentally-friendly product, or fair trade cannabis. Though these dynamics pertain primarily to the legal supply chain, they had depressive effects on wholesale cannabis prices in both licensed and unlicensed markets.

Licensed and unlicensed cultivators are increasingly producing bulk commodities, with implications for labor organization

Amidst declining prices and a consistent growth in market share for processed goods, cannabis producers are increasingly becoming bulk commodity producers, as they supply raw, unprocessed flower to processors and manufacturers. Some cultivators elected to sell their flower as "trim," which has lower taxes and low labor costs (i.e. no processing necessary) but also significantly lower wholesale prices. Some cultivators moved to "fresh frozen" methods of harvest for processed goods, which can retrieve decent prices and save significantly on labor and processing costs. These shifts are products of declining prices as well as high financial and regulatory costs of labor. As producers faced wholesale prices below the cost of production, they necessarily pursued cost-cutting behaviors with variable inputs. Labor is often the most expensive input, in terms of wages. But for licensed cultivators, costs are even higher, as explored above. By not processing their product (or turning to informal labor; see above), they could avoid these costs.

Dynamics Related to State & Local Policy

Some local and state agencies are using environmental offenses to re-criminalize cannabis cultivation

Environmental crimes were a topic of contentious debate during our fieldwork period (as they have been for some time; Polson 2019). State-level actors debated whether to legislatively create new felonies for environmental crimes related to cannabis, while regional- and local-level actors in some counties sought to pursue felonies for environmental crimes (e.g. CDFW, San Bernardino) and innovated new ways of punishing environmentally harmful practices and unauthorized natural resource use (e.g. Siskiyou, Humboldt). In some places, it appeared that environmental enforcement was used as a lever to bolster the power and budgets of specific agencies, particularly law enforcement. Environmental crimes were a way to demonstrate the relevance and efficacy of law enforcement in responding to cannabis cultivation. Agency self-interest was not always at play and when it was, it was partly symptomatic of broader anti-cultivation forces (e.g. resident groups, politicians) that sought punitive responses to cultivation. When policymakers and officials, who otherwise demonstrated little concern about natural resource use, showed concern over environmental health cultivators were skeptical and alleged hypocrisy.

It has been documented that unregulated cannabis cultivation can bring significant environmental harms (Wartenberg et al 2021) but the extent and nature of these harms was necessarily occluded by prohibitionist policies that forced activities underground (Gianotti et al 2017). With unlicensed cannabis today, the same dynamics persist, making environmental harms subject to politicized treatments that seek to characterize it for various purposes (Polson 2019). For example, estimates of water usage were consistently overestimated by law enforcement officials, allegations of "cartels" stealing water were made but not substantiated, and the environmental impacts of cannabis producers were highlighted by law enforcement and anti-cannabis residential groups in ways that misrepresented their absolute impact and their impact relative to other land uses (e.g. residential development, other agricultural crops).

Licensed farmers reported appreciation for rules that taught them how to minimize impacts (even if other rules were cumbersome and confusing, as with conflicting state and local rules over water storage and sources in Humboldt). Unlicensed cultivators reported learning more about environmental impacts since legalization, too, thus highlighting the importance of programs to illuminate best practices for all cultivators. However, when cultivators experienced intense enforcement (e.g. in San Bernardino, Humboldt, and Siskiyou) cultivators appeared more prone to utilize intensive, impactful growing practices to speed harvests and avoid detection. It is likely that intensive enforcement curtails information flows in ways that impede learning about environmental impacts.

Local permitting processes are frequently perceived as corrupt, biased or unfair

A recurring theme among cultivators was the belief or suspicion that the local cannabis regulatory system and officials were corrupt, biased, or unfair. This was notably less evident in some places, like Nevada County, but was present in the majority of other sites. These perceptions were grounded in periodic cases of corrupt regulators and police (e.g. in Rohnert Park, Yuba County, Humboldt). They were also grounded in cases of pay-to-play and bribery schemes run by local officials, who were in charge of local permitting (e.g. Baldwin Park, Adelanto, San Bernardino (city), San Luis Obispo, Calexico) and allegations of misconduct in numerous other locales (e.g. Fresno, Humboldt, Maywood, Los Angeles,

Lynwood, Santa Ana, Trinity County) (Elmharek 2023). We spoke with unlicensed and licensed operators that had contributed money to politicians promising them permits, most of which did not receive those permits.

When local permitting processes appeared to favor larger, well-connected operations, they ignited a sense of unfairness. Local policies were often designed and implemented in ways that made cultivation permitting uniquely difficult. For those whose permits were approved faster or with fewer hitches, allegations of favoritism and corruption were common. Though we cannot validate or invalidate the veracity of these allegations, they indicate a deep-seated distrust between cultivators and officials, particularly in places that were known for granting large permits, like Calaveras County, Adelanto, and Lake County (and Humboldt, which had relatively low size caps but significant animosity between large and small growers).

Taking the case of Humboldt, this distrust was bolstered through a number of ways including: officials and their relatives received local permits while other permit applications lingered; former officials obtained jobs in cannabis consulting and litigation; large operations were granted flexibility in permit terms in ways that seemingly violated county rules while smaller operations were targeted for small violations; and abatement notices and subsequent fines that were unmerited or unproven, resulting in delayed permits (see Downs 2019; Norris 2020; on delays see Biber et al 2023). One large farm was known to have consultant-shopped to produce a dubious report about road grading and traffic impact. Another large firm was given an exception to operate in a stream management area and another farm permit advanced after CDFW comments regarding its impacts on wetlands went missing from a staff report. One former planner alleged the county “greased the wheels” for larger grows. One project was allowed to bypass an Environmental Impact Report, despite being next to a river and several acres in size. Large projects were pushed through that had questionable water sources, while another 2-acre project, run on diesel, was approved over local opposition to likely environmental impacts. When the county considered tax relief for cultivators, it emerged that four of the largest farms had not paid taxes, while 80% of other cultivators had. We find it unlikely that irregular actions occurred more in Humboldt than other places. Instead, we attribute the vocal reaction against officials to an organized, dense cultivator community and significant environmental opposition to larger projects.

We noted wide acceptance among cultivators and government regulators that “most government officials are still learning and undereducated,” about the plant, its habit and growing requirements. Thus, regulations “don't line up with ecological sound decision making.” Many respondents argue some regulations are not simply capricious but inappropriate for regulating the cannabis plant. One agricultural commissioner notes how the categorization of cannabis as a product versus a crop created issues meeting CEQA requirements. Another regulator noted concerns over annual certification and costs of weight scale requirements, and a third expressed consternation over lack of clear guidelines for pesticide use, noting that “issuing a pesticide permit was a bit of a leap in the dark…because we just didn't really have clear directions yet from either the state or the local organizations.” Regulations can feel ‘unsettled,’ putting cultivators “into a little bit of gray area”, according to this regulator. Many cultivators find themselves in a position of involuntary non-compliance, not because they are failing to meet regulatory standards, but because regulatory standards are failing them by being frequently in flux. As many industry members noted, “we need to be put in the room with [policy makers],” to ensure regulatory standards are appropriate for the plant, its production and sale.

Local politics foments tensions and distrust among small and large cultivators

The tension between large and small producers was rooted in struggles among cultivators and other market actors to direct policy and capture local markets for varied purposes. We recorded significant conflicts among cannabis advocacy organizations in Mendocino, Humboldt, Trinity, Yuba, and San Bernardino's High Desert, among other places (including at the state level). These conflicts were antagonistically structured by: a) state policy allowing for stacked licenses, which opened the door to large operators; and b) local control and the varied political dynamics this opened up in every locality. The large majority of localities banned cultivation (see above), often against the will of local voters (i.e. 2/3rds of counties approved Prop 64, while only 1/3rd permits cultivation; NORML 2016). When counties did permit cultivation, various actors mobilized to affect the course and direction of that regulation (Dillis et al 2024). This included not just environmentalists and residential groups that opposed regulations, but differing groups of cultivators that sought to direct regulations in ways aligning with their visions and interests. Cultivators commonly distinguished between organizations representing "community" (which sought more accessible, stakeholder-informed regulations) and those that represented "greed" (seeking tighter regulations designed to craft county policies for the benefit of more powerful or at least well-positioned actors). Conversely, other cultivators framed the opposition as one of responsible, controlled regulation and loose, unrealistic regulations that would not withstand challenge. These distinctions mapped onto differentiations between "small" and "large" farms. The varied struggles that ensued were complex and required multi-perspectival analyses. Yet, one consistent pattern across struggles to ban or permit was the relatively arbitrary and highly political nature of local control, which could determine winners and losers by swaying just one supervisor or council person's vote. The result of the regulatory architecture of local control, ban capacity, and license stacking was dissension and disunity among cultivators at a key moment in the formation of the cultivation sector.

Local policies and implementation practices often erected barriers to permitting

High regulatory barriers were seen as evidence of punitive treatment of cultivators generally and small cultivators, specifically. One consultant, who has seen numerous requirements demanded of permittees, argued that the county sought to upgrade its rural infrastructure on the backs of cannabis cultivators. In that county and others, applicants were commonly required to remediate legacy issues on their land, permit all existing structures, declare water sources, resolve any title issues, and address all infrastructure on the property (e.g. culverts, roads) regardless of whether they were related to cultivation sites and prior to final permitting. Additionally, applicants were required to upgrade shared roads to new standards, as with one cultivator who was required to improve dozens of culverts on several miles of shared road in a private subdivision before he would be allowed to obtain a permit. When licensees fell out of compliance or unlicensed cultivation was identified, growers were subjected to raids, fines, and liens that were atypical for agriculture in California. Licensed cultivators were deeply upset by these dynamics, often crying or becoming exasperated during interviews.

Local enforcement can be overzealous and prone to error

Exuberant enforcement and the configuration of growers as potential criminals has led to numerous instances of mistaken or improper enforcement (for video examples, see the documentary *Murder Mountain* or YouTube of a raid on tomato plants in Yuba County). Examples from our research include: a farmer raided while his interim permit was being processed; METRC inspectors who incorrectly

registered excess plants and ordered eradication; a property owner who was held responsible for abating structures built by a previous owner for cannabis cultivation (the abatement was estimated to cost $150k); a grower who was told by the county to abate his cultivation site while waiting on his state license, followed by $15k in fines; a grower that was sent a letter to abate his greenhouse, which he used for food crops; and a Trinity county raid that cut plants and killed a dog of a state-licensed grower, whose county permit was held up with all other county permits by litigation and slow county processing. Overzealous enforcement, exceptional to cannabis, provided further evidence to cultivators that cannabis was not treated fairly, even when growers followed rules.

Unlicensed Cultivator Responses to Market & Policy Change

Regulatory barriers deter licensure among many unlicensed cultivators

Decisions to remain unlicensed revolved around perceived and actual barriers to participation. In the present study, we looked at the policies and market dynamics that erected those barriers and, as a consequence, grew the ranks of the unlicensed sector. Such policies include bans and litigation over unclear rules (see above) as well as policies like permit caps, inefficient and ineffective permitting programs, and compliance standards and fee structures that render permitting highly difficult. Much of this finding reiterates findings from our previous survey (Bodwitch et al 2021; Polson & Bodwitch 2021; Polson et al 2023), but it deserves attention as barriers to licensure was commonly cited as a reason for not becoming licensed.

Some unlicensed cultivators regretted not entering the licensed market early, when there were special allowances for legacy operations, regulations with lower barriers, and more opportunities to establish a place in the market. Others, however, viewed licensure as a trap and were happy to avoid it. This attitude was reflected as regret among licensed cultivators, as with one woman that had been seeking a local permit for over four years and wished she had never entered the legal process. While previous research shows attitudes about regulation or government did not determine decisions to remain unlicensed (Bodwitch et al 2021), our research suggested that as time goes on, people have accumulated doubts over regulatory fairness and efficacy and this may, now, guide decisions about licensure as much as existing barriers. For example, we heard from some cultivators that the aversion of having government officials and notably those from the US Wildlife services and Fish and Game accessing and visiting their land was enough to deter their seeking entry into the legal market. At the same time, simply the process of having one's address and gardens registered, made public and made visible to government officials in particular, presented a key deterrent to others.

Licensed cultivators reported numerous barriers to local permitting. Examples included:

- one woman whose local permit had been suspended after a local lawsuit required a new CEQA process;
- multiple licensees who encountered changing requirements from local land use agencies;
- changes in planning personnel that cost significant time and money for licensees;
- a licensee who invested $300k in road grading but was charged $500k in fines for remediation when he began grading before permits were approved, thus pushing him to close his farm and abandon the property (without remediation);
- several licensees that waited years for permits and months for simple responses;

- a cultivator who cut trees to abide by CalFire requirements but then was fined by the county for doing so;
- several cultivators in one county went through licensure processes with the planning agency only to be stopped by the Sheriff's agency over strictly-interpreted background check requirements; and
- in one county, invasive surveillance and strict enforcement that punished licensed growers for exceeding their plant allowances ("overgrows").

One farmer, who has a titled water diversion from a nearby stream, was told by a state agency to use that source, while a local agency required him to build a catchment pond, which the state agency opposed. He is hoping to build a well to resolve the issue, though permits for that are held up as they study its relation to local waterways, meaning that currently he catches rain water in his home's gutters (collection for residential use) and redirects that toward bladders to use on his farm. Another cultivator had to move his garden site on his small property to abide by setback requirements (for cannabis but, notably, not for livestock that his neighbors keep) but the site was in the shade, requiring him to pull permits to cut down trees. He also processes his cannabis using informal workers since his business could not operate profitably while paying full wages, insurance, and bringing his property up to commercial/ADA standards. Numerous cultivators reported moving between counties to handle regulatory flux that included repealed and reinstated permit ordinances (Calaveras), suspended permitting processes (Mendocino, Trinity), and fluctuating enforcement intensity (Yuba, Nevada, Riverside, San Bernardino, El Dorado and others). Several consultants report warning new clients away from cannabis cultivation unless they have several hundred thousand dollars of cushion. Farmers report arduous experiences and high costs trying to comply with its CEQ terms, particularly when each farm is required to conduct an EIR. This requirement is normally only required for major industrial or commercial sites and almost never applies to individual farms. One licensed grower contemplated giving up his license because his quality of life declined drastically since obtaining a license – more work and pressure; less income; less time with his family and friends; year-round work. Meanwhile, several people had hoped to join or form cooperatives but were impeded by restrictive state rules. Conflicting, shifting, onerous, and unevenly applied regulations produced what one called a "washing machine" of regulations, that gives licensees the sense of being tossed around. While the examples above were collected from licensed growers, unlicensed growers were well aware of these barriers and commonly saw unlicensed cultivation as a better, less expensive, less onerous process.

Market barriers deterred unlicensed cultivators from licensure

Beyond troubles with regulation, cultivators experienced barriers in the market. Credit and financing was a perennial challenge for licensed and unlicensed cultivators alike (though licensed operators generally had greater need for financing as costs were higher). One unlicensed cultivator reported avoiding licensure because their property would likely not be approved for cultivation according to various state and local rules, unless they could rally significant capital for property modifications. Several cultivators and consultants conveyed skepticism about (other) consultants who could price gouge, lie about proficiency, overestimate their necessity to cultivators, miss crucial deadlines, and even, in one case, skip town with client's money. During our study period, licensees were obligated to keep growing or risk losing their licenses, but unlicensed production allowed cultivators flexibility in when to cultivate. (Recent legislation allows for fallowing or size reductions among licensees.) As mentioned above,

distributors were a problem for cultivators, especially in remote areas, where distributors were scarce and unstable. Problems were numerous: little to no marketing; products expiring before transfer to retail; contract breaches; firm closure without payment or return of product. Many farmers similarly expressed frustration about their lack of direct access to retail (which was always mediated by distributors) and the trend within retail stores for distributors, who were often vertically integrated with major brands, to dominate prime shelf space to the detriment of smaller firms and farms. Unlicensed markets provided more market access and less encumbrances, in the estimation of most participants.

Economic and legal change eroded established social, economic, and environmental management patterns in rural cannabis cultivating communities

Prohibition fostered communal networks to manage markets, labor and land in unique ways. Cultivation injected cash into regional economies, much of which stayed local. Since it could not generally be deposited in banks, cash was often spent directly and locally. It flowed into local property markets, retailers and contracting businesses, which in turn employed many workers year-round and seasonally. This was crucial in areas bereft of quality, year-around employment opportunities, especially for those with lower educational status or mobility (see above). Cultivators tithed money to local organizations and funds, helping communities manage roads, fund fire departments, schools, and community centers, and sustain vibrant rural cultures at a time when many rural areas were in economic and demographic decline. Now, legal cultivators pay taxes instead, which are allocated in different (often non-local) ways, and all cultivators are operating with slim margins that generally impede community/local giving.

Legalization and the price crash that followed have brought about tremendous community upheaval, affecting social organization, land tenure and stewardship, and the economic structure of the industry. Licensed and unlicensed cultivators alike have been impacted. In legacy communities, cannabis cultivation had been informally guided by shared customs and unwritten norms; these might be overtly moral, political or ethical, or simply compelled by the need to stay safe (e.g. do not pollute streams or grow too big to avoid detection; do not fight with neighbors to avoid being turned in or isolated from buying networks). Legalization has replaced customary cooperation with market competition. Competition compels cultivators to “rationalize” labor (e.g., reduce wages as much as possible). Declining profits pressure cultivators to grow more cannabis to maintain the same income level. This is especially true for licensed farmers, who work additional hours (or pay others) to administer permits and licenses for their farms. These economic pressures directly impinged on communities, reducing the multiplier effects of cultivation. To illustrate:

- Licensed and unlicensed farmers in one watershed saw their community transform since legalization as many residents sold their (unlicensed) farms. Some sold to realize gains in a speculative rush towards the new licensed market; later, people sold after failing to get into the licensed market or after prices crashed. Now, properties are worth significantly less, neighbors had become strangers, and some felt unsafe, knowing that the community was not cohesive, self-regulating and alert for dangers as it had been previously.
- While newcomers cannot be blamed for economic decline, there was a loss of local knowledge and community structures. One unlicensed cultivator mourned the market failure of cannabis and the communal disintegration that followed. Another foresaw suffering and communal decimation, predicting that his community would see more Appalachian-style poverty.

- We heard several reports of upticks in non-cannabis drug commerce and use as cultivators sought other income sources and ways of escaping reality and coping with cultural dissolution and livelihood decline.
- In one cannabis-rich area, several people noted the struggle of local retail stores, once supported by cultivators. In another region, cultivators noted that the community heritage, institutions and assets they had built and attracted to the area were now being turned into selling points for regional tourism oriented toward wealthy urbanites.
- Divisions between licensed and unlicensed cultivators were not particularly present (there was no significant judgment of individual licensing decisions, except against large operators). Yet, the presence of licensing did cleave the cultivation sector into two, as a new set of institutions and milieus were established around licensed cultivation.
- Some cultivators mourned the decline erosion of environmental stewardship that high-priced cannabis had made possible. Licensed producers reported pressure to cut corners on environmentally beneficial growing practices (e.g. higher cost organic fertilizers and supplemental nutrients) when they were not overtly mandated by regulations. Several cultivators valued their own ecological, agricultural and land use practices over government-mandated practices, noting that regulations did not always produce logical or environmentally-friendly outcomes (e.g. plastic tags and packaging; illogical destruction or construction of water storage or sourcing; widening of roads; setbacks that created unintended consequences; shifting regulations that required successive environmental modifications). While some required practices became more common, some voluntary practices were sacrificed as extra work and money in a tight market.

For many licensed and unlicensed cultivators, property ownership and independent wealth enabled economic survival

We noted a difference between cultivators that had leased land and those who owned. Owners were generally in a better position to weather the price crash, while lessees were dependent on each season's earnings and often experienced dislocation sooner. For those struggling to survive, the immediate answer to lower prices was to produce more cannabis, an action that only made collective overproduction worse, by flooding markets with more product. Some turned to selling parts of their business or property to investors. This had the effect of increasing production pressures as investors sought returns and could lead to farm, business, and property loss as investors sought to recuperate their investments. The few people we spoke to who were *not* struggling had independent sources of wealth and were not concerned about the downturn. Indeed, having independent wealth was a key strategy of some market participants (including outside investors) who aimed to wait out the economic downturn until competition was winnowed down and they could capture, or consolidate, market share.

Cultivators adapt cultivation practices and strategies to cope with changing enforcement conditions

Growers adapted to new enforcement regimes accompanying legalization. Growers learned how to abide by enforcement parameters – avoiding stream diversion, tree cutting, and large gardens, all of which made enforcement more likely. When one county started identifying structures as likely cannabis facilities, some growers adapted by building complex, disguised structures under the forest canopy. In the desert,

when enforcers started targeting white hoophouses, growers camouflaged them or transitioned to fixed structures that could hide light better, like barns and stables. Given satellite enforcement, some cultivators reported abandoning larger, identifiable gardens for more dispersed plants across properties that were less likely to be identified.

We noted decreased concern with cultivation on public lands, which, one grower explained, made sense: public land cultivation could bring felonies (especially if on federal land), while cultivation on private land was a misdemeanor under state law. Growers continued planting on unoccupied or abandoned lands ("trespass grows") to avoid identification or connection to other sites. An organized crew in one area would establish trespass grows for one-cycle "turn and burn" operations – grows that were set up to grow one cycle (2-3 months) and then vacate the property before enforcement was able to respond. Yet, some cultivators saw this as more risky than growing on lands they controlled. In line with this, some cultivators operated "burner properties" to evade enforcement. We noted this in two areas with low property prices: unlicensed cultivators purchased abandoned, foreclosed, or cheap properties at low prices, often through an LLC or other entity, and established absentee cultivation sites on them. After one or a few harvests, the property paid for itself and the rest was profit. These burner properties could be abandoned without loss if enforcement occurred and were a common adaptation to enforcement that was intermittent and slow to respond to individual sites (thus allowing several crops to be harvested). It was also an adaptation to jurisdictions that targeted landowners with fines for abatement and clean-up. Cultivators found it harder to lease land from landowners under these conditions and turned toward (opaque) ownership strategies to access land. Some spread cultivation over several properties to reduce risk of enforcement by reducing garden sizes.

To avoid enforcement, some cannabis cultivators utilized hemp permitting programs to cultivate flowering/THC-laden cannabis. The county where we noted this (San Bernardino) has a punitive ban in place that disallows legal cannabis cultivation. Adaptively, some cultivators sought permits to grow hemp and availed themselves of a weak, underfunded hemp permitting and inspection program to cultivate cannabis under these permits. Some hemp permit holders leased plots of land to cultivators, presumably to limit their liability for errant cannabis cultivation.

Cultivators use geographical mobility to cope with regulatory uncertainty

Cultivators commonly moved locations as an adaptive strategy. At the farm level, operators would commonly move from site to site leading to what law enforcement officials commonly called a game if "cat and mouse" or "whack a mole." This characterization illuminates the perceived inability of enforcement to stop cultivation but, rather, to merely dislocate it. In two regions, many cultivators moved to remote parts of the region, believing that law enforcement would prioritize more accessible sites. Others moved to jurisdictions with less enforcement capacity. Particularly in regions where jurisdictions were relatively small, like parts of the Sierra Nevadas, cultivators would move between jurisdictions as enforcement intensified or declined. Some cultivators who held licenses in permit counties also held unlicensed properties in ban counties, which they would cultivate when ban enforcement ebbed. While in the Sierra Nevadas, we observed the intensification of enforcement against unlicensed cultivators in El Dorado, the decline of enforcement in Yuba, persistent, arbitrary, and seemingly improper enforcement in Sierra, and escalating, systematic enforcement in Nevada County. One grower in Yuba noted the stabilization of cultivation after several years of intensive enforcement that drove some out of the county; several growers in El Dorado spoke of the virtual shut-down of cultivation through intensive enforcement

and the movement of cultivators to other regional locales. Several cultivators experienced enforcement that shut down their operations, but they persisted in cultivation in new places in order to make a living. Another variant of this was in the Inland Empire, where intensive campaigns in Los Angeles and Riverside counties pushed cultivation into San Bernardino's High Desert, inciting one of the most intensive anti-cannabis campaigns since legalization. When we concluded work in San Bernardino, after the eradication campaign ended, we noted that grow stores were selling ample amounts of supplies for new cultivation. Some enforcement efforts were effective at moving cultivation within-county, as might be argued when San Bernardino enforcement targeted indoor grows with felony charges for electricity diversion, thereby moving much cultivation to another county area. The best intensive enforcement could achieve, from our observations, was to dislocate or delay cultivation – push it off in time or space. When growers fled to other jurisdictions, a cyclical effect would occur where enforcement would then intensify in those counties until it pushed the problem back to the original locale or to another locale altogether.

Cultivators must turn to additional income opportunities and new skill sets to sustain themselves economically

Cultivators who were attempting to continue in the cannabis industry commonly relied on a second income in order to support their continuing work in a deflating industry. These alternatives were unskilled jobs in traditional industries, such as transportation, or by renting out their properties or homes through third party rental companies such as AirBnB. The most successful licensed cultivators we spoke to recognized that a turn towards additional entrepreneurial activities within the industry and towards high valued market products was a key part of their success to remain profitable and viable as small farmers. This economic resilience largely depended on having ample resources (including time) to pursue these non-cultivation activities as well as building or having pre-existing business skills (e.g. university education, business training, experience with licensed businesses). Even as some saw these skills as necessary for navigating the complex regulatory and financial environment, others were repelled by this. Most simply lacked the skills, training, and resources and could not access assistance, if it existed. Some cultivators framed their non-licensing decision as voluntary and principled (e.g. a form of resistance against the changing nature of the legal market and the loss of its "soul"). Even those who had acquired previous business skills noted that it was also necessary to learn "regulation speak" in order to navigate a particularly heavily regulated industry. This speaks to the importance – and frequent lack – of "cultural capital" among cultivators as they encountered governmental and legal-market relations. This should be understood in the context of a generations-old prohibition that isolated cultivators and drove them away from these formal, legal interactions.

Cultivators generally trust legal markets less than unlicensed markets

Cultivators frequently referenced the loss of trust that characterized the transition to legal markets. Trust is critical for community cohesion and successful market function. Under medical and prohibited cannabis regimes, trust was necessary to cultivate and market cannabis safely and to transact cannabis securely. Multiple licensed producers recounted being cheated in the legal market (e.g. never getting paid for product) and losing more money in licensed markets than they ever had in unlicensed ones. This was a deterrent for unlicensed producers skeptical of becoming licensed. Against this trend, we noted that some unlicensed cultivators strived to maintain and build trust as an ethical and economic value they could offer in contrast to the licensed market. One unlicensed manufactured product producer worked with

dozens of cultivators to provide them fair, above-market prices, to afford himself a living, and to support what his colleague described as solidarity with the "outlaw" culture that he grew up with. Though some hold hope that unlicensed cultivation can maintain these values, licensed cultivators reported feeling increasingly trapped in a decision-making and investment cascade, where they are compelled to compete, administrate, rationalize, and pursue profits, often at the expense of values they hold, like reliability in market relations.

Unlicensed cultivators experience stigmatization and scapegoating

We repeatedly encountered characterizations of unlicensed cultivators as violent, criminal, polluting, etc. Our necessarily limited, but significant, experience did not bear out these characterizations in any greater quantity than we might expect in any market sector. Instead, we saw negative characterizations used to vilify, re-criminalize, and punitively treat unlicensed actors. Sometimes this effort to vilify was less about cannabis than it was about other political or economic agendas, such as the exclusion of cannabis cultivators from prized agricultural zones, exclusion from landscapes valued aesthetically by some residents, or (as mentioned above) efforts to retain institutional/agency power as cannabis prohibition subsided (along with the resources it once garnered).

Punitive treatment can push unlicensed actors further underground, where destructive behaviors (e.g. wage theft, pollution, domestic abuse) remain unregulated or unaddressed and even grow. This can create a negative cycle of stigmatization→isolation/repression→negative behavior→further stigmatization. As we found in a 2019 survey (Bodwitch et al 2021) and was bourne out in this research, unlicensed actors tended to be smaller, lower-income and more vulnerable along varied axes (e.g. citizenship, gender, race). This only appeared more relevant as we documented the abandonment of cultivation by those who were better off and had other livelihood options. Efforts to vilify this cohort will invariably affect those most likely to otherwise be considered "equity" populations.

Unlicensed cultivators perceive the licensed market and regulatory system to be rigged against them

In most parts of the state, cultivators reported perceptions – often grounded in actual events, policies and dynamics – that the regulatory system is stacked against them. With already-established market networks and known ways of operating in the gray/unlicensed market, cultivators frequently saw non-licensure as the best pathway forward. Perceptions of bias should be understood in the context of two factors. First, the War on Drugs created an embattled sensibility among cultivators, who were deliberate targets of governmental enforcement. This created distrust and antipathy between cultivators and officials. When legalization passed, these feelings did not evaporate and, in many cases, were deepened when officials (primarily local but also including environmental state agencies) continued with prohibition (via bans), persisted in punitive enforcement across ban and permit counties, and made rules with little to no input from local cultivators. There were important exceptions to this, when organized cultivators were able to assert their voices in policy debates (e.g. in Calaveras, Nevada, Humboldt and other places). In the process, cultivators could transform stigmatizing and punitive approaches and understandings. However, even in places where cultivators took a leadership role in crafting policy and changing social attitudes,

policies were frequently gutted, overturned, narrowed, or used as cudgels to monitor and police cultivators in new ways. These actions confirmed psychological dispositions among licensed and unlicensed cultivators that regulatory systems were not welcoming to them, continued many of the harmful practices of prohibition, and opened the door to well-positioned and high-resource operations. These psychological barriers were significant factors in encouraging unlicensed persistence.

A second contextual point on bias perceptions: prohibited and medical cannabis cultivation was, necessarily, an industry based on small farms. Prohibition disincentivized large farms and made small farms possible. Farmers could make a living on relatively small amounts of plants. Larger farms were more easily detected. Under medical production, with prices still relatively high, cultivators commonly abided by a 99-plant limit dictated by federal sentencing minimums. With legalization and the license "stacking" loophole (see below), farms of virtually unlimited size became possible, thus undermining the small farmer base of the cultivation sector (despite specific intentions to support small and medium firms and farms in Proposition 64). Subsequently, small farmers in particular were primed to perceive state and local regulatory systems as stacked against them. These perceptions were confirmed in the results of local permitting processes (Biber et al 2023) and analyses of license and geographic data (Dillis et al 2021; Schwab et al 2019). This reinforced long-standing concerns and rumors of large economic actors positioning to take over cannabis – concerns that were rooted in a complex worldview of marginalized, criminalized people. In sum, unlicensed cultivators were suspicious of a state that had criminalized them for generations and now appeared to be delivering the industry to large operators.

Cultivator perceptions of unfairness are commonly traced to state decisions to enable "stacking" of cultivation licenses.

The most common reference for a biased regulatory system was the loophole allowing firms to stack multiple permits, thereby gutting the 1-acre cultivation limit structured into the licensing system. The 5-year delay on issuing "Large" state licenses was intended to allow small and medium firms and farms to establish a foothold in the market, as stated in Proposition 64, but the stacking allowance made this 5-year delay ineffective, except at creating more work for individual firms who had to license numerous sites instead of one. The result: several firms now hold more than 100 acres of cultivation area; one farm is expected to cultivate more space than the entire permitted area of Mendocino County (Black 2023); an estimated 20 top license holders can supply California's entire market; and licensed cultivators, if producing at full capacity, could produce over six times as much cannabis as California consumes (HDL 2023). With no licensing and supply controls, markets were flooded with product, and prices crashed. We spoke with two people who reportedly had direct knowledge of large operators with stacked licenses whose low prices were being subsidized by investors, so as to consolidate market share after others failed.

Unlicensed cultivation is unlikely to stop in the medium to long term, unless prices remain depressed

While many unlicensed cultivators walked away from cannabis during the market crash, there is reason to suspect that the decline of unlicensed cultivation will be temporary. Some cultivators reported that they are turning to other forms of agriculture and/or fallowing their gardens and working other jobs until market prices rebound. Cultivators are integrating multiple livelihood strategies, like obtaining land management grants or turning to non-cannabis ag, to have in a

more permanent rotation of livelihoods that includes cannabis, when viable. Once cannabis is lucrative again, some plan to re-enter the market. The only reason unlicensed cultivation would not persist is if prices remain consistently low as other states legalize cannabis, which would eliminate out-of-state markets and bring more price-suppressing production online. The longer prices remain depressed, the more distribution networks disappear, making it harder for re-entry to unlicensed markets to occur.

Discussion: Transformation of the Unlicensed Cultivation Sector

Proposition 64, in its "Purposes and Intent," listed as its first priority the transition of cannabis commerce into a legal structure. Six years into the legalization experiment, that transition has not been achieved, nor could its total disappearance be expected with the persistence of federal prohibition and the unregulated markets this produces. That said, the cultivation sector has undergone significant transformations. First, cultivators have adapted to state regulatory regimes, by, for instance, adjusting cultivation practices to new enforcement regimes. Second, the unlicensed market (including cultivation) has become interdependent with the licensed market. Third, the composition of the unlicensed sector has shifted since the "Green Rush" away from large numbers of opportunistic actors and toward fewer, but more vulnerable, marginalized, and low-income actors. This last finding is a direct result of the market crash induced by regulation with no controls over supply. In this section, we explore the ramifications of these findings.

First, the unlicensed cultivation sector was and is a product of policy. Prohibition incentivized cultivation by elevating prices through heightened risks (Polson 2017). As such, cultivation became a crucial livelihood for people and communities across the state, particularly where other formal market opportunities were scarce or low-wage – as in post-industrial urban areas and rural areas witnessing the decline of extractive industries (e.g. timber, mining). The prohibited cultivation sector took shape over several generations and adapted to evolving forms of enforcement (Corva 2014). Prohibited cultivators crafted market networks, horticultural knowledge, plant genetics, community norms, and ecological management systems in diffused ways across California, but particularly in remote or hidden areas where detection and enforcement were difficult. The result of prohibition and farmers' adaptations was one of the most vibrant regions of cannabis cultivation and commerce in the world. Cultivators adapted under medical decriminalization by, for instance, obtaining medical recommendations to protect their gardens. Despite governmental efforts to regulate cultivation in places like Humboldt, Oakland, Isleton, and Mendocino, federal pressure stymied regularization of cultivation, relegating medical cultivators to a legal gray zone.

Legalization marks an effort to shift from indirect governance to direct regulation of a newly licensed market. Like prohibition and medical decriminalization it also shapes and regulates the unlicensed market and cultivation sector. High barriers to entry and punitive approaches to cultivation (unique to cannabis) repelled many from licensure and swelled the ranks of the unlicensed. So did bans and restrictive zoning, which excluded the majority of California's

territory and population from legal market access. A more open, accessible system would likely have increased legal market participation, and lower costs (e.g. tax rates) would likely have discouraged unlicensed market activity. Supportive programs to transition farmers and permitting programs informed by cultivator stakeholders would have increased participation and legitimacy of the legal system. Some kind of reparative process – like a truth commission – may have assuaged distrust of the government after a century of prohibition. Sustaining the one-acre cap, limits on licenses, or a program to support fair prices for cultivators could have buttressed a smallholder cultivation sector and induced many more cultivators to become licensed. Instead, we have a system that is hard to enter, governed by uneven and capricious regulations, and widely unprofitable.

Though Proposition 64 sought to stop and replace the unlicensed cultivation sector with a licensed, legal one, we found that the current landscape is better understood as an ambiguous blending of prior and present policy regimes. As Corva & Meisel (2021) argue, the current policy regime is "post-prohibition," or legalization *with*, not after, prohibition. Yes, a legal regulatory apparatus exists at the state level, but most California residents are excluded from participation in it by bans and restrictive zoning, compelling them to either operate without licenses or lose their livelihoods. Some counties have initiated intensive enforcement campaigns that resemble the prohibition era, and state and local agencies are finding ways to recriminalize cannabis cultivation through energy and environmental ordinances. Those counties that permit cannabis cultivation often do so in administratively exceptional and restrictive ways. Even the state-protected right to personal cultivation is commonly abrogated by restrictive regulations. Punitive fine structures, extraordinary inspection and permitting routines, and backlash from residents and environmentalists have led many cultivators to conclude that the biases and antipathies of the prohibition and medical cannabis periods have persisted into legalization. In other words, many see "legalization" darkened by the long shadow of prohibition.

Many were deterred from the licensed market because of this policy ambiguity and the difficulties it generated in the licensing system. Bugs can be expected in the rollout of any regulatory system, but license applications were often delayed by shifting rules, unclear information, and erratic demands by state and local agencies. As license seekers advanced through the process, it became clear that obtaining licenses would take significant financial and administrative resources, which many farmers did not have. Cultivation rules had uniquely high standards that disqualified the land of many farmers and subjected those whose land did qualify to intensive regulation and inspection protocols that few other land users in California, let alone agricultural actors, are subjected to. For cultivators harmed by the War on Drugs, immediate, intensive state surveillance was too much to bear, leading many to remain unlicensed. Instances of official corruption, favoritism (particularly toward larger, well-resourced applicants), and contentious, punitive interactions between licensed cultivators and overzealous enforcement and inspection officials, reinforced decisions to remain unlicensed. Indeed, unlicensed and licensed cultivators alike came to believe that the licensed system was rigged against all but the most

well-connected and financed operations. This perception was hardened in 2017 by the allowance of license "stacking," and by the numerous communities where anti-cultivation forces exposed license seekers to legal jeopardy by delaying and repealing permitting programs. In short, troubles with the licensing system – and a policy approach that sought to regulate but in punitive, burdensome ways – routed many cultivators toward the unlicensed market.

From late 2020 through early 2023, the price of wholesale cannabis destabilized and then plummeted, causing significant attrition in the licensed and unlicensed cultivation sectors. The crash was caused by many factors: 1) declining prices, which stimulated more production, further depressing prices; 2) oversupply of the legal market by licensed actors, which was licensed to produce many more times than state demand and experiencing pressure to provide returns to investors; 3) influx of out-of-state product (particularly from Oklahoma's medical program and Oregon's hemp program); and 4) lack of retail outlets to absorb product, thus giving retailers (and distributors) significant power to bargain down wholesale prices. Unlicensed cultivators experienced unique pressures – they had decreased access to out-of-state markets as more legalization measures passed in other states and they were increasingly competing with licensed producers from California and elsewhere seeking to dump their excess product into the unlicensed market. Unlicensed cultivators were more nimble than their licensed counterparts, as they were not encumbered by significant debts and sunk costs and could exit the market as their circumstances dictated. They could also store product and, theoretically, sell it when markets rebounded, a luxury that licensed producers, who faced product expiration dates, could not afford. As the price slump dragged on, many discarded, gave away, or severely discounted crops. Most could not find prices above the cost of production, if they could sell their product at all. Many cut their losses by leaving cultivation behind or suspending operation until better market conditions occurred. The uniqueness and intensity of this crash cannot be overemphasized – cultivators that had been producing for over 40 years reported they were unable to find buyers for the first time ever. Many farmers walked away from properties and communities, sought off-farm jobs, became depressed, abused substances, and experienced significant stress – patterns of decline seen in many agricultural sectors and rural and/or post-industrial areas in successive waves over the 20th century. For these farmers, however, large-scale attrition happened not over a century but in the course of a few years.

As prices stabilized at lower levels in 2024, several trends in the unlicensed cultivation sector became apparent: 1) reduction in size and scale of unlicensed production as many find it a non-lucrative option; 2) a trend toward multiple livelihood strategies among cultivators, including cultivation, stewardship activities, other agricultural activity, and off-farm jobs; 3) adaptation to new enforcement regimes, particularly around water use and other environmental rules that can bring felony charges, large fines, and increased risk of enforcement; and 4) a tendency to move in and out of unlicensed cultivation, as market conditions and access ebb and flow. The great attrition of farmers between 2020 and 2023 transformed the composition of the unlicensed sector. Many who had other formal market options and skill sets left cultivation for other jobs.

Cultivating cannabis is not lucrative anymore, unless costs can be reduced or scale can be maximized. Those who stayed in the unlicensed sector had few other skills or formal market access, particularly immigrants and ethnically-marked people, who could often collectivize and internalize costs through family and community networks, as well as differently-abled people, elderly people, or people with mental difficulties, who found formal workplaces challenging. (This is mirrored in unlicensed retail markets that appeal to low-income people, people of color, immigrants and others who are suspicious of or cannot afford licensed retail markets.) Low profit margins encourage greater economic exploitation of workers, as reflected in plummeting wages for unlicensed workers and the growth of largely ethnically-marked worker crews in different parts of the state. Low margins can also incite ecological exploitation as cultivators attempt to extract more product, faster, from land. Stringent enforcement can aggravate ecological exploitation and the imperative to grow fast.

The unlicensed and licensed markets have become highly intertwined. The licensed market was built on the savings of unlicensed actors, who used their prior earnings to afford compliance, permits, licenses, and operating costs. The knowledge, expertise, and plant genetics of the licensed market have come directly from the unlicensed market. The licensed market depends upon informal labor markets to remain viable. The unlicensed market helps licensed market actors remain viable amidst crashing prices, high regulatory costs, and a lack of supportive services and allowances that other agriculturalists take for granted. Generally, licensed market actors have relied on access to the unlicensed market to afford compliance and regulatory costs and to make sales, particularly in the dismal economic period of 2020-23. Notably, this pattern of dual reliance on legal and illegal markets is part of a pattern set under Proposition 215, when the state neglected to create a viable regulatory framework for cultivators, leading to the common practice of selling in both medical and prohibited markets. Rather than undermining or competing with the licensed market (as is frequently alleged by policymakers, particularly those seeking to advance enforcement as a solution), the unlicensed market has in fact been a *resource* for a struggling legal market and licensing system.

Today, there is remarkable fluidity between legal and unlicensed markets nationally. An uneven patchwork of hemp, medical, and adult-use markets has led to a proliferation not only of cannabis flower and products but of products derived from hemp products, which now move easily across state borders. Ultimately, these markets will remain unstable until the federal government creates consistent nationwide policy. Recently, the Department of Health & Human Services issued a recommendation to reclassify cannabis from Schedule I to III. A decision by the Drug Enforcement Administration is pending. This rescheduling would likely have little effect on legal markets, as it would primarily carve out space for pharmaceutical companies to explore and market cannabis-based drugs. The US Congress is also considering two major bills, one that would expand banking and financial services to the cannabis industry (the SAFER Act) and another that would decriminalize cannabis, impose a federal cannabis tax, dedicate funds to

reparative equity programs, and reform banking and investment laws, among other stipulations (the MORE Act).

In the absence of federal legalization, however, it is important to continue to clarify the purpose and function of legalization. If prohibition is over, the exceptional and punitive treatment of cultivation, and cannabis generally, should be reformed. Though we find it unlikely that most unlicensed cultivators can be successfully integrated into legal systems at this point without a major policy and market overhaul, California can modify its approach to unlicensed cultivation, from one based on suspicion and recrimination to one based on education, inclusion, and development. The market crash has caused significant distress, but it also provides an opportunity for state and local governments to reset their relation to unlicensed cannabis cultivation.

Recommendations

We have covered in this report the numerous ways that prior and present policy regimes have shaped the unlicensed market, often unintentionally. In this section, we explore ways to address the unlicensed cultivation sector and market in more intentional ways.

If the unlicensed market is to be addressed in a post-legalization California, strategies beyond enforcement should be sought. We believe it is important to avoid compounding the historic harms of the War on Drugs with intensive systems of enforcement, surveillance, and punishment. A more just way to counter a persistent unlicensed cultivation sector and market is to make legal, licensed markets fair, accessible, and functional. Cultivators consistently reported desiring legal operation, but did not see it as viable for reasons explored above. A more accessible system could expand livelihood opportunities, create more legitimacy for the licensing process, and address distrust and skepticism of the government by cultivators. To do this we propose policy-based methods of creating a more open licensing system, specifically for small-scale and marginalized cultivators, and consistent agricultural policy regarding cannabis.

However, we find it likely that most unlicensed cultivators are not able or do not have an interest at this point in becoming licensed – not because they are opposed to regulation in principle but because they deem it inaccessible, expensive, and risky. Furthermore, many have left the cultivation sector altogether, with negative consequences for communities. For that reason, we recommend that the state address the fall-out of sectoral collapse as it would in any other economic sector. We suggest the following approaches:

Reform Enforcement Approaches for an Altered Cultivation Sector:

The government's primary post-legalization approach to unlicensed cultivation (and markets) has been civil and criminal enforcement. Enforcement cannot – and has not in the history of cannabis policy – eliminate cultivation. To the contrary, it has historically served to stimulate cultivation.

For a decriminalized crop and land use, enforcement is needed only in cases where harms are imminent to the health of workers or to the environment and safety of the community.

We recommend a strategic shift from aims of elimination to aims of management and minimization. Enforcement aligned with key priorities can set parameters for cultivation that protect public goods and prevent harms. Unlicensed cultivators are responsive to this type of predictable enforcement. When enforcement is indiscriminate or chaotic, enforcement loses this preventative, protective power. Intensive enforcement focused on eradicating all cultivation spurs cultivators to adapt by seeking new methods of evasion and concealment – methods that may cause new harms. As cannabis is not the lucrative crop it once was, intensive enforcement is likely to fall on increasingly vulnerable populations – not the ostensibly wealthy grower of years past. Most cultivators that experience enforcement – especially those that cannot afford sophisticated methods of evading enforcement – are likely to have negative conditions compounded by enforcement. They will be pushed further into legal and economic precarity, thus reducing their ability to escape a cycle of poverty, marginalization, and informal or illegal livelihoods.

Enforcement needs to be reformed not only against unlicensed cultivators but for licensed cultivators, too. When enforcement (via inspections, drones, satellites, etc.) is overzealous against licensed cultivators, it furthers a sense among *all* cultivators that the government is operating as if cannabis were still illegal. The exceptional treatment of licensed cannabis confirms this feeling, for many we interviewed, as cultivation has not been evenly integrated into existing land use, environmental, and agricultural regulations. While cannabis might be technically legal, cultivators sense that these exceptional rules reflect the persistence of prohibition-era stigmas and biases. Unfair or exceptional treatment in the licensed system ensures that a significant portion of cultivators will persist in the unlicensed market.

We are not experts in enforcement practices or protocols so we limit our recommendations in this section to a set of general approaches:

- *Enforcement priorities:* Encourage clear priorities within relevant agencies about how cases will be selected for enforcement and conduct review of outcomes periodically to ensure corresponding outcomes;

- *Cultural Training:* Promote training and cultural sensitivity among enforcement officials and all government agents engaged with cannabis cultivators and market actors;

- *Enforcement + Education:* Couple enforcement actions with education and allowances to correct and learn from mistakes without financial or legal consequence, particularly for first-time offenders;

- *Encourage responsible local policies:* Only allow enforcement efforts by state agencies in counties that offer: a pathway to licensure, feasible personal and medical cultivation

allowances, viable environmental remediation plans and resources, and abatement periods without consequence for first offenders;

- *Remediation Resources:* Ensure that enforcement resources of natural resource agencies are matched with remediation resources;
- *Environmental Consequences of Enforcement:* Review the environmental consequences of bans and enforcement actions and appropriately adjust protocols;
- *Equity & Enforcement:* Review the racial, nationality and income/class composition of enforcement actions among agencies and take appropriate actions to ensure equity;
- *Parity & Enforcement:* Review the differences in enforcement between cannabis and other forms of agriculture and land use to assess fair application of laws;
- *Surveillance:* Clearly delineate guidelines for – or halt altogether – the use of drones, satellites, and other invasive technologies used by regulatory and enforcement agencies for licensed cultivation that are not applied to other land uses or agricultural forms. Guidelines should respect civil liberties expected by average land users.

Place Guardrails on Local Control:

When localities ban or restrictively zone cannabis cultivation, it disqualifies broad swaths of people from legal cultivation pathways. At a bare minimum, the right *and ability* to cultivate personal and medical plants should be ensured indoors, as stipulated in Proposition 64. We recommend that outdoor personal cultivation regulations should not exceed those placed on gardening activities and other mundane land uses. Another strategy is to facilitate establishment of regulatory programs at low costs and administration in ban counties. This could be a boilerplate model created at the state level to enable localities to grant permits to any cultivator that meets state criteria in designated county zoning types. The program would need to entail minimal administration and costs for local counties.

- Create and disseminate low-cost, low-administration permit templates for localities to adopt or a clear pathway to allow localities to defer permitting/licensing decisions to the state;
- Create a small farmer carve-out in state rules that would allow farmers below a certain size threshold the ability to attain state licensure with minimal local permitting
- Ensure feasibility of personal cultivation of indoor plants, economically and logistically. Require counties that have permitting and fee requirements for indoor cultivation to conduct a feasibility study to ensure they are not violating state law.
- Encourage outdoor personal cultivation to be allowable in residential areas that would otherwise allow land uses like gardening;

- Ensure that reporting, inspection, and regulatory guidelines for cannabis are either reduced to the level of other equivalent land uses or, alternatively, that other equivalent land uses are elevated to standards applied to cannabis producers.

Address Fallout from Wholesale Cannabis Price Crash on Affected Cultivators and Communities:

It is commonplace for the government to support market sectors shaken by a crisis. In just six years, cannabis cultivation has undergone a massive transformation that has left many Californians destitute, unstable, and untrained for alternative employment. In the aggregate, it has also meant decline for cannabis cultivating communities in urban and rural environments across the state. Measures could be taken to stabilize these communities by extending resources to individuals in need and local organizations.

- Provide economic development assistance, including social services, worker training and placement programs, commercial development, and infrastructural support, to communities affected by the decline of cannabis cultivation and markets.

- Create, or harness existing suicide hotlines to specifically target cannabis cultivators dislocated by the market crash and legalization policies.

- Provide state-based emergency disaster relief or other time-limited state support for former cannabis cultivating communities and for licensed cultivators struggling to maintain viability.

Widen Pathways to Licensure through Fair, Accessible Licensing and Permitting systems:

Unlicensed cultivators consistently reported perceptions that they were barred from successful participation in the licensed market. Many recounted specific instances of friends, neighbors, or acquaintances that attempted licensure and were met with ongoing challenges (financial, administrative, enforcement-related, etc.). After years operating in hiding from the government, many distrusted the transitional process to licensure and were not dissuaded from this perspective as permitting and licensing faltered. Though the moment to undo this suspicion may have expired for some when the 1-acre limit was undermined, it is still possible to lower barriers, specifically for small-scale operators. If the licensed system opened up significantly, especially for small-scale farmers, participation by currently unlicensed farmers could increase. It will be necessary, though, to incrementally lower costs or requirements and to promote new forms of small farmer organization that help to reduce zero-sum competition. Cooperatives and appellation designations would do this. Opportunities for cultivators to access consumers and retail markets –like direct-to-consumer sales and on-farm sales and consumption – could go a long way for sustaining farmers, especially in more remote regions where cultivation has historically been situated.

- *Reduce Regulatory Burdens*

    - Explore options to reclassify cannabis as an agricultural crop in order to reduce unaffordable, burdensome and unnecessary requirements while retaining environmental standards. If infeasible, create an exception for commercial-status compliance requirements for farms below a certain size and workforce.

    - Review permitting and licensing requirements and eliminate unnecessary conditions of approval at state and local levels.

    - Establish a temporary, state-funded mobile team for ensuring efficient local licensure. This team could offer technical assistance, CEQA expertise, and needed labor time, without saddling counties with new personnel obligations and a staffing infrastructure that is not needed past this initial period.

- *Support Cultivators, Particularly at Smaller Scales, to Maintain Viable Businesses*

    - Expedite grant programs to cultivators, like those run by CDFW, so that funds can be disbursed with minimal requirements and maximum speed.

    - Allow direct-to-consumer sales by cultivators at designated events.

    - Allow on-farm cannabis sales of flower on farms up to one (1) acre, including for tourist and on-site purposes (e.g. resort, wedding venues; bud-and-breakfast), up to a designated limit of flower and processed products, so long as those products accord with parallel standards established in AB2168.

    - Allow a designation for cannabis farmers under 1-acre to provide a subscription-based, direct-to-consumer provisioning service, like that enabled by AB224 for Community Supported Agriculture.

    - For any or all of these activities, afford cannabis producers under a 1-acre limit to access testing facilities directly instead of mandating passage of product through a distributor.

    - Conduct review to ensure that these options do not require large or cumbersome administrative hurdles or costs higher than those for other agricultural crops.

    - Provide appropriate State staffing for loan and grant underwriters that could also administer technical assistance programs for financial matters, oversee lending and grants, educate qualifying farmers on these services, and solicit their involvement.

    - Prioritize technical assistance for smaller-scale and equity farmers, as well as for those for whom English is not a first language (i.e. through translated educational materials and assistance).

    - Provide tax breaks for environmentally sustainable farm management practices that enhance biodiversity and reduce greenhouse gas emissions (i.e., agroecological, regenerative, conservation, diversified practices)

    - Forge a pathway for Cooperative Extension Services (or similar support services) to be offered to cannabis cultivators.

- *Encourage Collective, Cooperative Market Formation*

    - Establish a fund to assist small farmers in forming and joining appellation cohorts.

    - Establish a rotating loan fund to establish and maintain agricultural cooperatives for cannabis, specifically for capital-intensive project loans (e.g. for processing or distribution facilities, administrative hires, mortgage assistance, bridge funding during

CEQA review) that would be paid back with low- or no-interest over a set period. Ensure eligibility requirements that enhance social equity and environmental sustainability.

- *Assist Localities in Creating Equitable Pathways to Licensure*

    - Design and make available a streamlined, opt-in regulatory program for permit counties to reduce their regulatory burdens (e.g. inspections, renewals, permits). Promote state management and administration of the system within a constrained set of locally-set parameters.

    - Create a statewide "cottage" permitted land use for small-scale cultivation (e.g. under 2500 square feet) modeled after the California Homemade Food Act. This would include: exemption from local bans; permission to conduct on-farm sales; use of outdoor or mixed light with sustainable practices; approval by ministerial state license; exemption from CEQA and local zoning.

    - Reinstitute not-for-profit, closed-loop medical collectives, with a limit on total number of plants and patients, as exempt from local bans and permitted at the state level (extend AB 1186), subject to reasonable local zoning requirements. May be modeled on existing Community-Supported Agriculture systems (i.e. AB 224) with the caveat that all members are patients with doctor's Recommendations. May also require a written covenant between cultivator and patient members on inputs, growing methods, remuneration amounts for invested labor time, and testing requirements, if any.

Create Consistent, Bold Agricultural Policy toward Cannabis to Stabilize Markets and Prices:

While the foregoing recommendations indicate ways of supporting and reforming the current regulatory system, California lacks a comprehensive agricultural policy around cannabis. The lack of agricultural policy has resulted in a struggling cultivation sector, where prices are unstable and cultivators have lost market power to investors and downstream actors. In consequence, the number of cultivators is dwindling, the potential for monopolistic consolidation and concentration of the industry is growing, and ripple effects are being felt across cultivating communities in rural and urban environments.

In US history, the government has repeatedly intervened to stabilize markets and prices in agricultural and resource sectors. However, many of these interventions have over time tended to contribute to consolidation and concentration. What is needed is a commitment to stabilizing and maintaining a cannabis agricultural sector in ways the State has done for other crops. We do not advocate simply applying policies – like subsidies or programs for intensifying chemical and technological use on farms – from other sectors to cannabis. Instead, we believe a system that builds upon the unique history and dynamics of cannabis markets, communities and regulation could reform how we envision the potential of cannabis agriculture and its ramifications for agriculture more broadly. One such approach is the idea of market share allotments that grant farmers a set amount of the market to produce annually at a fair price. (For full explanation of such a program please consult Polson & Bodwitch 2021. In short, this program would calibrate supply and demand to prevent market crashes and attrition and would assure farmers earn enough to afford compliance, environmental protection, fair wages, and a livelihood. To accomplish this in a way that maximizes participation by retaining existing farmers and including new farmers, the State

would need to eliminate unlimited Large licenses and claw-back existing "stacked" licenses as they are sold or are retired. A stabilized cultivation sector and price would eliminate a key resistance of unlicensed cultivators to legal market participation, namely, that economic security is not possible.

- Create wider participation in the licensed market by clawing back "stacked" licenses (e.g. via retirement) and stop future stacking from occurring.
- Halt issuing of new Type 5 large licenses, at least until federal legalization occurs.
- Establish an allotment system:
    - Create an office to design and implement the allotment program (i.e. estimate production needs, calculate minimum prices, sort/grade product, transfer allotments, provide quality/safety assurance, grant permission for temporary non-production, retire unproductive allotments, facilitate purchase of allotments by equity, small, legacy and socially disadvantaged farmers);
    - Grant an allotment to each license holder (the percentage of total production that accords to their cultivation area and type);
    - Establish a small fee for cultivators to fund state-run auctions and a rotating fund to purchase excess/unsold product;
    - Establish a voting forum of farmers to guide development of the program.

Works Cited

Adler, P. "Ethnographic research on hidden populations: Penetrating the drug world. The Collection and Interpretation of Data from Hidden Populations." *National Institute on Drug Abuse Research Monograph*, 98 (1990): 96-112.

Aldrich, M.R. and Mikuriya, T. "Savings in California marijuana law enforcement costs attributable to the Moscone Act of 1976—A summary." *Journal of Psychoactive Drugs,* 20, no 1 (1988): 75-82.

Anders, J. *Beyond counterculture: The community of Mateel.* Washington State University Press: 1990.

Baum, D. "Legalize It All." *Harper's Magazine*. April 2016.

Biber, E., de Genova, H., Froehlich, D., Hossack, J., Park, T. and O'Neill, M. Local Regulation of Cannabis in California. (October 2, 2023). Available at SSRN: https://ssrn.com/abstract=4590229 or http://dx.doi.org/10.2139/ssrn.4590229

Black, L. " 'Unprecedented': The biggest Calif. pot farm keeps getting bigger." *SFGate.* April 30, 2023. Found at: https://www.sfgate.com/cannabis/article/largest-california-cannabis-farm-glass-house-17924258.php

Bogaert P, Bochenek T, Prokop A, and Pilc A. "A Qualitative Approach to a Better Understanding of the Problems Underlying Drug Shortages, as Viewed from Belgian, French and the European Union's Perspectives." PLoS ONE 10, no. 5 (2015): e0125691.

Bodwitch, H., Polson, M., Biber, E., Hickey, G.M. and Butsic, V., 2021. Why comply? Farmer motivations and barriers in cannabis agriculture. *Journal of Rural Studies*, *86*, pp.155-170.

Butsic, V., Carah, J.K., Baumann, M., Stephens, C. and Brenner, J.C. "The emergence of cannabis agriculture frontiers as environmental threats." *Environmental Research Letters*, 13, no. 12 (2018): p.124017.

California Growers Association. *An Emerging Crisis: Barriers to entry in California Cannabis.* Feb. 15, 2018. Found at: https://www.jennifermcgrath.com/wp-content/uploads/Emerging-Crisis-Barriers-Entry-California-Cannabis-Cal-Growers-Report-2.15.18.pdf

Campos, I. "Mexicans and the origins of marijuana prohibition in the United States: A reassessment." *The Social History of Alcohol and Drugs*, 32, no. 1 (2018): 6-37.

Corva, D., 2014. Requiem for a CAMP: The life and death of a domestic US drug war institution. *International Journal of Drug Policy*, *25*(1), pp.71-80.

Corva, D. and Meisel, J. *The Routledge Handbook of Post-Prohibition Cannabis Research*. New York: Routledge: 2021.

Dillis, C., Biber, E., Bodwitch, H., Butsic, V., Carah, J., Parker-Shames, P., Polson, M. and Grantham, T. "Shifting geographies of legal cannabis production in California." *Land Use Policy,* 105 (2021a): p.105369.

Dillis, C., Polson, M., Bodwitch, H., Carah, J., Power, M.E. and Sayre, N.F. " Industrializing cannabis?: socio-ecological implications of legalization and regulation in california." In: *The Routledge Handbook of Post-Prohibition Cannabis Research*. Routledge: 2021b, pp. 221-230.

Dillis, C., Butsic, V., Moanga, D., Parker-Shames, P., Wartenberg, A. and Grantham, T.E. 2022. "The threat of wildfire is unique to cannabis among agricultural sectors in California. *Ecosphere,* 13, no. 9 (2022): p.e4205.

Dillis, C., Petersen-Rockney, M. and Polson, M. "A theory of geo-social marginalization: A case study of the licensed cannabis industry in California." *Journal of Environmental Management,* 355 (2024): p.120396.

Downs, D. "In California's Cannabis War, Civil Is the New Criminal." Leafly. July 16 (2019). Found at: https://www.leafly.com/news/politics/in-californias-cannabis-war-civil-is-the-new-criminal

Elmharek, A. "Corruption is widespread in California's weed industry. Now, the state is taking action." *LA Times.* March 23, 2023. Found at: https://www.latimes.com/california/story/2023-03-23/state-launches-probe-of-cannabis-licensing-to-clean-house-of-corruption

Fery, B. "Exploring category shifts in the California cannabis market," *Headset,* June 29, 2022. Found at: https://www.headset.io/blog/exploring-category-shifts-in-the-california-cannabis-market

Gianotti, A.G.S., Harrower, J., Baird, G. and Sepaniak, S., 2017. The quasi-legal challenge: Assessing and governing the environmental impacts of cannabis cultivation in the North Coastal Basin of California. *Land Use Policy*, *61*, pp.126-134.

Gieringer, D.H. "The forgotten origins of cannabis prohibition in California." *Contemporary Drug Problems,* 26, no 2 (1999): 237-288.

Gomberg-Muñoz, R. "Willing to work: Agency and vulnerability in an undocumented immigrant network." *American Anthropologis*t, 112, no. 2 (2010): 295-307.

Headset. 2024. California Cannabis Trends. Available at: https://www.headset.io/markets/california

HDL. *Cannabis Supply and Demand in 2023.* HDL Companies. April 5, 2023. Found at: https://www.hdlcompanies.com/news/cannabis-supply-and-demand-in-2023

Kalacska, M. and Bouchard, M., 2011. Using police seizure data and hyperspectral imagery to estimate the size of an outdoor cannabis industry. *Police Practice and Research*, *12*(5), pp.424-434.

King, R.S. and Mauer, M. "The war on marijuana: The transformation of the war on drugs in the 1990s." *Harm Reduction Journal*, 3 (2006): 1-17.

Kwong, P. "Forbidden workers and the US labor movement: Fuzhounese in New York City." Critical Asian Studies 34, no. 1 (2002): 69-88.

Lassiter, M.D. "Pushers, victims, and the lost innocence of White suburbia: California's war on narcotics during the 1950s." *Journal of Urban History*, 41 no. 5, (2016): 787-807.

Maher, L., and Dertadian, G. "Qualitative research." *Addiction,* 113, no 1 (2018): 167–172.

Musto, D.F., 1999. *The American disease: Origins of narcotic control*. Oxford University Press.

Norris, N. "Penalties, Costs, Fines and Fees: A deep look at the Humboldt county cannagbis abatement process." *Redheaded Blackbelt.* May 22 (2020). Found at: https://kymkemp.com/2020/05/22/penalties-fines-and-fees-a-deep-look-at-the-humboldt-county-cannabis-abatement-process/

Patton M. Q. *Qualitative Research and Evaluation Methods.* (3rd ed.) Sage: Thousand Oaks, CA: 2002.

Polson, M., 2017. Planning for marijuana: Development, governance and regional political economy. In *The illicit and illegal in regional and urban governance and development* (pp. 141-158). Routledge.

Polson, M. "Cultivating Cannabis, Excepting Cannabis." In: *The War on Drugs: A History.* Farber D, Ed. New York: New York University Press: 2002, pp. 92-128.

Polson, M. and Bodwitch, H. "Prohibited commoning: Cannabis and emancipatory legalization." *Elementa,* 9 no. 1: 2021.

Polson, M., Bodwitch, H., Biber, E., Butsic, V., and Grantham, T. "After legalization: Cannabis, environmental compliance, and agricultural futures," *Land Use Policy* 126 (2023): 106531.

Raphael, R., 1985. *Cash crop: an american dream*. Ridge Times Press.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. and Jinks, C. "Saturation in qualitative research: exploring its conceptualization and operationalization." *Quality and Quantity,* 52 (2018): 1893-1907.

Schaneman, B. "Cannabis growers exit California market, helping stabilize prices." MJBizDaily, January 26, 2023 Found at: https://mjbizdaily.com/cannabis-growers-exit-california-market-helping-stabilize-prices/#:~:text="California%20produces%20more%20than%20three,retail%20capacity%2C"%20Smith%20said.

Schwab, B., Wartenberg, A. and Butsic, V. "Characteristics of farms applying for cannabis cultivation permits." *California Agriculture*, 73, no. 3 (2019).

Schwab, B. and Butsic, V.A. "Green Acres? Cannabis agriculture and rural land values in Northern California." Agricultural & Applied Economics Annual Conference, July 30, 2017.

Sloman, L. *Reefer madness: a history of marijuana.* Macmillan: 1998.

St. John, P. "The reality of legal weed in California: Huge illegal grows, violence, worker exploitation and deaths." September 8, 2022. Found at: https://www.latimes.com/california/story/2022-09-08/reality-of-legal-weed-in-california-illegal-grows-deaths

Tracy, S. J. *Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact* (2nd ed.) Wiley & Sons: Hoboken, NJ: 2019.

Vallance R.J. "Gaining Access: Introducing Referred Approval." *Issues In Educational Research*.11, no 3 (2001): 65–73.

Wang, I.J., Brenner, J.C. and Butsic, V., 2017. Cannabis, an emerging agricultural crop, leads to deforestation and fragmentation. *Frontiers in Ecology and the Environment*, *15*(9), pp.495-501.

Weiss R.S. *Learning from Strangers: The Art and Method of Qualitative Interview Studies.* Free Press, New York: 1994.