

Berkeley Cannabis Research Center

POLICY FINDINGS & RECOMMENDATIONS REGARDING CALIFORNIA CANNABIS

Farming, Regulation and the Environment



Authors:

Michael Polson, PhD; Van Butsic, PhD; Chris Dillis, PhD; Haley de Genova, JD; Ted Grantham, PhD; Laura Rosel Herrera, MPA; Joanna Hossack, JD; Ann Laudati, PhD; Jeff Vance Martin, PhD; Phoebe Parker-Shames, PhD; Margiana Petersen-Rockney; Jeremy Sorgen, PhD; Genoa Starrs.

Abstract

The following are the collective findings and recommendations from the Cannabis Research Center's annual retreat at Blue Oaks Natural Reserve on October 2-3, 2022. UC Berkeley's Cannabis Research Center (CRC) brings interdisciplinary scholarship to bear on the social and environmental dimensions of cannabis production.

We convened this retreat at a critical moment for cannabis regulation and markets in California. Cannabis producers and the ecologies and communities with which they are entwined are under enormous pressures: wholesale prices have crashed, farms are failing, and local regulatory systems are struggling, among myriad other challenges.

This report presents multiple pathways for consideration by state and local governments, in efforts to improve cannabis cultivation policy. The policy options contained span authorities: some would require legislative action, some could be pursued through state regulation or local ordinances, and some may even require a ballot initiative. We leave the determination of these matters to others more knowledgeable of the legalities of each policy issue.

We undertook this report at the encouragement of the Department of Cannabis Control (DCC) and recognize the significant work the DCC and other agencies have done to address market and regulatory challenges. We aim to trace the policy implications of our research findings, with a hope that they are helpful in policy deliberations over the current gaps in cannabis regulations.

We encourage feedback from anyone who reads this and has perspectives on cannabis policy. We hope to update this document on a semi-regular basis and will consider all feedback in doing so.

We are available for follow-up questions, discussions, and responses via the corresponding author: Michael Polson, mpolson@berkeley.edu and more information can be found at crc.berkeley.edu.

The participating authors of this document are active researchers on cannabis-related matters, many funded by the Department of Cannabis Control. Our work represents a range of disciplinary and methodological approaches, including anthropology, law, hydrology, land use science, wildlife ecology, geography, agrarian studies, philosophy, and public administration.

Table of Contents

P 4 - Table I - Summary of recommendations based on the identified policy objectives

P 6 - Overview

P 7 - Policy objectives & Problems addressed

P 8 - Stages of the Cannabis Licensing - Challenges, Research Findings, Recommendations

P 27 - Limitations

P 28 - Conclusion

Table I - Summary of recommendations based on identified policy objectives.

Objectives	Possible recommendations
Sustain a multi-scale farming system	<ul style="list-style-type: none"> ● Support diverse-scale farm structures (e.g. cannabis co-ops and medical collectives) ● Allow direct-to-consumer sales for small cultivators ● Freeze/restrict large “Type 5” cultivation licenses ● Exempt small scale “cottage” farms (under 2500 square feet) in ban counties ● Create a simplified, state-administered opt-in program for small farms in permit counties
Maintain high environmental standards	<ul style="list-style-type: none"> ● Pair enforcement efforts with proportional funding for remediation ● Provide tax breaks for environmental practices that go beyond minimum requirements ● Provide assistance (e.g., tax breaks) to bring smaller farms into environmental compliance ● Support remediation efforts by state agencies ● Link state enforcement assistance to local remediation plans and practices ● Expand public information programs and consumer education on outdoor and environmentally-sustainable products ● Make CEQA process more feasible for farms and localities (multiple options explored)
Ensure equitable market participation	<ul style="list-style-type: none"> ● Create credit/loan fund for smaller, equity, and disadvantaged farmers ● Allow direct sales for small farms (e.g. farmstands, events, on-farm sales) ● Create statewide, small-garden “cottage” exemptions to local bans ● Also, see points listed below under legacy of the War on Drugs

<p>Address the harmful legacies of the War on Drugs</p>	<ul style="list-style-type: none"> ● Require and incentivize warnings & education/remediation periods before enforcement approaches ● Discourage bans by withholding environmental enforcement resources from localities that do not offer a pathway to licensure ● Create a statewide exemption to bans for “cottage” farms under 2500 square feet ● Protect personal-use cultivation ● Create oversight/review for local-level enforcement actions
<p>Promote regulatory consistency</p>	<ul style="list-style-type: none"> ● Create a simplified state-managed opt-in regulatory program for localities to cede permitting/licensing to state ● Support local permitting and inspection processes through a mobile state team ● Reform CEQA process (multiple possible options provided in text)
<p>Promote an equitable & sustainable cost structure</p>	<ul style="list-style-type: none"> ● Establish revolving farmer credit/loan and grant fund for small/equity/disadvantaged farms ● Make CEQA more feasible for farms ● Reclassify “commercial” status of farms ● Discourage local “privilege” taxes
<p>Better align production and consumption</p>	<ul style="list-style-type: none"> ● Freeze large cultivation licenses ● Establish an allotment system that sets price and production amounts, grades product, oversees auctions, and other options provided in text
<p>Provide cannabis cultivators with the benefits and assistance available to other agricultural producers</p>	<ul style="list-style-type: none"> ● Include cannabis in the Ag Pass program to mitigate wildfire impacts ● Create a revolving agricultural fund program that offers loans, grants and technical assistance to smaller farmers ● Make Cooperative Extension resources available to cannabis farmers or fund Resource Conservation Districts to supply these services ● Allow direct sales for smaller farmers ● Reclassify farms away from “commercial” status

Overview

Over two days of group sessions, our researchers collaboratively:

1. Identified possible policy objectives the state may wish to pursue;
2. Identified problem areas based on our collective research; and
3. Specified possible policy pathways that address these problem areas and advance particular policy objectives.

In this report we detail the policy-related challenges, associated research findings, and policy options. It is centered on cannabis cultivation and adjacent market activities. It is structured in three sections: 1. **Pre-licensing conditions**; 2. **Licensing process**; and 3. **Post-licensure market and regulatory conditions**.

This report does not prioritize one policy objective or recommendation over another, but presents multiple pathways for consideration. All of these recommendations, however, seek to improve cannabis cultivation policy to align with the intent of Proposition 64 and the will of California's voters. In particular, Proposition 64 aimed to ensure an adult-use market built around small and mid-sized businesses (Proposition 64, Section 2(J) and require cannabis businesses to follow strict environmental standards (Section 3(h)).

We offer these policy recommendations with two caveats. First, since the report focuses on the cultivation sector, we encourage the DCC to consider corresponding revisions for other aspects of the supply chain, notably retail, the strengthening of which could provide downstream benefits to the cultivation sector (e.g. through the formation of new retail outlets).

Second, many farmers report feeling “whiplash” from frequent regulatory changes and we do not wish to deepen that distress. That said, the cannabis regulatory system is not yet entrenched, offering a window of opportunity to address issues and inconsistencies now, before they magnify over time and entrench inequities and harms. The State must be judicious in introducing new regulations while balancing that with the need to foster equity and sustainability. The measures in our report are intended to foster that balance, particularly given the wide sentiment and economic reality that the pathway to legal cannabis cultivation is arduous for all and insurmountable for many.

We sought to address the following policy objectives:

1. Sustain an innovative multi-scale farming system that includes small and medium-sized farmers and the communities that depend on them.
2. Maintain high environmental standards and reduce negative environmental impacts.
3. Ensure equitable market participation and broad pathways to participation.
4. Address the harmful legacies of the War on Drugs, particularly in relation to enforcement practices and discriminatory outcomes.
5. Promote regulatory consistency across jurisdictions.
6. Promote an equitable, sustainable cost structure (i.e., taxes, fines, fees, administrative costs).
7. Better align production and consumption to avert overproduction and market collapse.
8. Provide cannabis cultivators with the benefits and assistance available to other agricultural producers.

We sought to address the following problems:

1. Lack of harmony across state agencies and local jurisdictions
2. High cost burdens on cultivators
3. Regulatory inconsistency
4. Problems with CEQA administration
5. Market fluctuation
6. Inability to earn livelihoods
7. Overproduction
8. Declining value of licenses
9. Anti-cannabis stigma

Policy Pathways:

Challenges, Findings, & Recommendations

1. Pre-Licensure Conditions

This section addresses the conditions that exist outside of and prior to licensure. It specifically addresses measures to address cultivation bans and enforcement against cultivators. The findings and recommendations on enforcement focus on state environmental enforcement and mostly on unlicensed cultivation, but the recommendations can be extended to the licensed market as well (particularly in relation to code enforcement that is overzealous and even punitive, when compared to other land uses and agricultural forms).

We are aware of recent measures, like the United Cannabis Task Force, that entail new enforcement efforts, yet we have not had a chance to thoroughly understand their operation. The recommendations below, then, are offered with the hope that environmental remediation is an intrinsic part of that effort and that the State has thoroughly considered its cooperation with ban counties that do not offer a legal pathway to licensure or police entities that explicitly obstruct the ability of cultivators to achieve licensure.

Challenge #1: Localities can ban cannabis cultivation, thereby foreclosing pathways to legal licensure. These bans are often implemented in punitive ways, with little effort at remediation or cultivator education.

Research Findings:

More than 2/3rds of California counties, and a similar proportion of cities, have banned cultivation, yet cultivation persists in many of these areas. The ability of localities to ban cultivation disproportionately harms small-scale and resource-limited farmers and those for whom English is not a first language. Denied entry into legal systems, poorer farmers do not have the resources to move their operations or navigate ever-changing requirements and are left vulnerable to law-enforcement-led interventions that often prosecute before education or remediation, reproducing punishment and harm patterns of the War on Drugs. In localities that provide education and outreach on requirements, and then warnings and remediation periods before fines are leveraged, cultivators (licensed and unlicensed) can and do address potential violations quickly and effectively. We have also found that cultivators adapt to requirements and parameters if met with a chance to remediate without causing harm. Indeed, immediate law enforcement intervention, often coupled with large fines and fees, may encourage new, more harmful cultivation patterns, such as destructive “turn-and-burn” operations, the dispersion and multiplication of cultivation operations (to avoid detection), cultivation on remote, ecologically-sensitive lands, and occluded, high-investment operations to avoid detection.

Recommendations 1-2 below seek to reduce expensive, unnecessary and punitive actions while promoting farmer education and reasonable civil remediation.

Proposition 64 protected the rights of California residents to cultivate up to 6 plants of cannabis, but ban counties have frequently imposed high barriers to personal-use cultivation, making it infeasible. **Recommendation 3** ensures that California residents have the ability to access and cultivate cannabis, as protected under Proposition 64, free from undue burdens.

With more than half the state’s population living in banned jurisdictions, primarily poorer rural areas, the current geography of bans is inequitable. Some counties ban commercial cultivation because they do not have the capacity to manage their own permitting and licensing processes. Further, with wholesale price decline, revenue incentives for ban localities to permit cultivation are evaporating. Paradoxically, if bans were eliminated and larger-scale cultivation allowed, it could aggravate current market conditions and lead to even further farm failure. Modifications or exceptions to bans are urgently needed, yet they must avoid aggravating conditions of overproduction. This can occur by carving out opportunities for smaller-scale production in ban counties, while allowing bans on large-scale cultivation to stand. If structured with lower costs and production caps, “cottage” farm carve-outs to bans could increase smaller-scale farmer participation, particularly for farmers historically harmed by the War on Drugs and for farms that rely on multiple livelihood strategies and income sources (which our research shows have been forced out of the cannabis market). **Recommendations 4-5** afford localities a simplified ability to permit small-scale cannabis, particularly in a period of price depression, reduced revenue incentives, and overproduction.

Cultivation and retail bans have also affected the ability of patients to provision and access medicine in affordable ways. Often cultivation bans and infeasible personal-use cultivation regulations correspond to areas that already have limited healthcare resources (e.g. remote, rural areas). **Recommendation 6** specifically carves out an allowance for patients to provision and access medicine in a closed-circuit, not-for-profit manner. All members would agree on key aspects of cultivation including: inputs, growing methods, remuneration amounts for labor invested, testing requirements, if any, and liability affordances. This system existed under Proposition 215, was defended under *People v Baniani*, and was temporarily allowed under MAUCRSA and could be modeled on existing community-supported agriculture laws (AB 224). It could apply both to ban and permit counties.

Recommendations:

- 1) Require or incentivize (e.g. through withheld state aid) ban localities to address unlicensed cultivation through civil enforcement first (not law enforcement) specifically by mandating:
 - a. Remediation periods for unlicensed activity (7 days minimum) unless immediate and ongoing harm is at stake;
 - b. Implement a program for education-oriented warnings to unlicensed cultivators about allowed and disallowed activity; and

- c. A delayed fine process that only begins after remediation periods end.
- 2) Withhold CDFW (and other state agency) enforcement resources from localities that do not offer a pathway to licensure for small-scale cultivators.
 - a. In the absence of this, require that ban counties receiving indirect state aid implement a civil enforcement-first approach that includes remediation and education efforts to all farmers.
- 3) Protect the 6-plant personal-use cultivation maximum from local efforts to regulate personal cultivation to the point of infeasibility.
 - a. Require counties that restrict personal-use growing to indoor cultivation do a feasibility study to ensure that individuals can provision their own cannabis through a reasonable and inexpensive process; and
 - b. Allow outdoor and/or mixed-light cultivation on any property where other personal-use plants are able to be grown.
- 4) Create a statewide “cottage” permitted land use for small-scale cultivation (under 2500 square feet) that is:
 - a. Exempted from local bans;
 - b. Able to conduct on-farm/in-residence processing and sales as with other forms of agriculture;
 - c. Encourages ecologically sustainable outdoor or mixed-light cultivation and very small-scale indoor cultivation (e.g. up to 500 square feet); and
 - d. Subject to reduced state licensure and compliance regulations, requiring only a ministerial state license not subject to CEQA, and limited or no local zoning authority as with other small gardens; and
 - e. Modeled after the California Homemade Food Act, which allows certain products to be made in private homes and sold to the public, subject to size/production limits.
- 5) Create a simplified, state-managed and state-administered, opt-in regulatory program for localities to allow small-scale cultivation (under 5000 feet) with significantly lower regulatory thresholds and reduced fee/license costs, thus offering a pathway for capacity-strapped ban counties to permit small-scale cultivation.
- 6) Reinstigate 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.
 - a. This 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.
 - b. This may also have a requirement for a written covenant between cultivator and patient members on inputs, growing methods, remuneration amounts for invested labor time, and testing requirements, if any.
 - c. This allowance would be allowed in ban and permit counties.

Challenge #2: The environmental consequences of cultivation can be significant, yet criminal and civil enforcement efforts frequently fail to remediate environmental issues.

Research Findings:

Cannabis cultivation, like cultivation of other crops, can cause environmental harms, especially when cultivators are denied access to licensure and cannot be regulated for environmental outcomes. In ban counties, environmental concerns have served as a major justification for bans, and are used to garner additional state resources, like CDFW enforcement support. As enforcement increases across California, these efforts are not (to our knowledge) systematically met with similar increases in remediation capacity or resources. This leaves cultivation sites unremediated, and often an even greater environmental risk, *after* enforcement (and, in several instances we have witnessed, *because* of enforcement that leaves sites trashed, or encumbered with so many fines owners simply walk away). We have seen a pattern of localities providing significant resources for law enforcement, but few for remediation after enforcement by police and other civil agencies. This results in slow or non-existent remediation after enforcement and a reliance on private landowners who may not have the inclination or resources to do remediation after busts on private land.

The State currently makes ban localities ineligible for cannabis-related law enforcement support, but the provisioning of State environmental enforcement support contradicts this policy. Some ban counties have utilized this loophole to access state resources to assist local law-enforcement, leading to an intensification of enforcement with few guardrails on how a county responds to cultivators. Localities request this State support yet few (if any) localities consult environmental scientists or agencies on the effects of whether and how bans *themselves* may affect the environment, crime and/or society. Further research is needed to understand the effects of bans, though initial results from a DCC-funded project indicates that bans may have counterproductive effects on environment, economy, and society. That is, enforcement efforts (especially those without remediation and education components) may amplify the harms they seek to address. State agencies may also be unwittingly enrolled into punitive efforts that undermine State aims of equity, sustainability, and the civil treatment of cannabis under Proposition 64 to the degree they partner with enforcement-first ban localities.

Recommendations 1-3 aim to encourage remediation efforts. **Recommendations 4-5** aim to moderate state-supported enforcement in areas with no legal pathway for cultivation and no provision for remediation. **Recommendation 6** aims to prevent the re-criminalization of unlicensed cultivators insofar as it violates the intent of Proposition 64. **Recommendation 7** aims to substantiate the benefits and harms of banning as a policy mechanism, as compared to permitting.

Recommendations:

- 1) Require state-funded environmental law enforcement to be paired dollar-per-dollar (or at an appropriate pegged amount determined by experts in remediation) with funding for remediation/environmental clean-up, particularly in ban counties.
 - 2) Provide appropriate state funding and staffing capacity for rapid remediation and reasonable monitoring after enforcement on public land or by state agencies on private land. If owners do not take quick remedial action, give the state capacity to remediate immediately and place the cost of remediation as a lien on the property.
 - 3) Require state agencies to request that site owners and operators remediate a site prior to enforcement efforts with appropriate remediation periods, particularly in ban counties.
 - 4) Withhold support of state environmental agencies from ban counties unless they have a cultivation site remediation plan and procedures in place, particularly for properties where the owner has abdicated responsibility for the property through absence or non-response.
 - 5) Extend to CDFW and other enforcing agencies the State policy of denying enforcement support to localities with no legal pathway to licensure.
 - 6) Create an oversight system for local-level attempts to aggressively and overzealously re-criminalize people (especially in targeted ways) for growing cannabis, as compared to other land uses.
 - 7) Prioritize research on the ecological, economic and social effects of bans compared to permit jurisdictions.
-

2. Licensing Process

This section details measures that address the licensing process itself. It concerns items that affect the cultivator's ability to navigate licensure and the state's ability to smoothly and efficiently license farmers.

Challenge #1: Localities are experiencing difficulties managing licensure processes.

Research Findings: Some jurisdictions are still experiencing a glut of applications. DCC's Local Jurisdiction Assistance Grant Program funding is helping but many localities still have a backlog of applications and inspections. Many localities do not want to hire new staff for time-limited positions that will leave them with budget obligations, especially when cannabis tax revenues have not met projections, or are outweighed by costly administrative burdens. There is frequent turn-over in staff leading these programs, resulting in a loss of institutional knowledge of how programs are created and implemented. Such turnover affects farmers going through the permit process as shifts in personnel often translate into repeated efforts to reintroduce themselves and their farms to new staff, being presented with conflicting information, significant delays in the permitting process timeline, new and expensive costs, and ultimately an erosion of trust in the

system. Improper record-keeping has also been a common problem in local jurisdictions. Adversarial relations have developed between county permitting agencies and cultivators as a result of lawsuits, accusations of bias and discrimination, and the lack of a robust reconciliation processes between equally-distrustful local governments and cultivators. Finally, many counties do not have resources to author and legally defend their ordinances, leading to the suspension and delay of program implementation. These lawsuits, brought by opponents of cultivation using CEQA and other environmental tools as well as predatory cannabis market actors seeking to bend local ordinances to their ends, can undermine local voter preferences and democratic processes. Many county's anticipated program revenue would have accounted for these costs but market conditions have since undermined this hope.

To support localities, there is a need to build local capacity to manage licensing in the short term. It is important that this licensing be efficient and equitable to achieve State aims of building a functional cultivation sector.

Recommendations:

- A) 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.
- B) Design and make available a streamlined, opt-in regulatory program for permit counties to reduce their regulatory burdens (e.g. inspections, renewals, permits).
 - a. This program could require simplification of county cannabis programs to universal statewide standards and allow the delegation by counties to the state for relevant permitting, inspections, licensing, building codes, and even tax collection, which would be distributed back to counties.
 - b. Localities could stipulate certain, limited parameters for this opt-in program, such as zoning stipulations, but other discretion (such as the cascading permits and compliance requirements that are often appended to local inspections) would be explicitly excluded from the state program.

Challenge #2: Several local permitting processes (particularly in counties with large amounts of cultivators) have been significantly delayed or rolled back because of problems with CEQA.

Research Findings: CEQA has repeatedly hindered counties from successfully permitting cannabis. The result is that several locality-wide permitting programs have been halted (e.g. Trinity), repealed (e.g. Yolo), and new CEQA processes initiated (e.g. Mendocino). This has meant significant and expensive delays for farmers and has demanded a new, expensive process to be implemented. In some places, this has resulted in individual farms having to perform EIRs—a standard that few farms in California are expected to do. (Indeed, CEQA is rarely ever required.) Farm-level EIRs are onerous and expensive to conduct. In some places, we have found

that CEQA is being used as a tool to stop or stall cannabis permitting by opposing groups, including other agricultural producers, cannabis opponents or residential opponents of cultivation, including in counties where the majority of residents voted in favor of Proposition 64 and/or passed local cultivation ordinances. The purpose of CEQA is to inform government decision makers and the public about the potential environmental effects of proposed activities and to prevent significant, avoidable environmental damage, yet this use of CEQA often exceeds this intention. Finally, jurisdictions that did programmatic EIRs for the entire jurisdiction are permitting more efficiently, thus leading to an uneven checkerboard of CEQA processes that favors and disfavors some farms over others, based on the jurisdiction where they happen to reside.

Measures could be taken to shift the responsibility for CEQA to the State if the state had adequate staffing and resources to process CEQA review quickly and efficiently.

Recommendation 1 would allow the State to assure uniform standards for CEQA across the state, circumvent the politicization of CEQA as a way to undermine cannabis cultivation, and allow for ban counties to permit cannabis without an onerous Programmatic EIR process. Similarly, the State could afford individuals in any jurisdiction an ability to be included under the State Programmatic EIR, such that they could avoid slow, onerous, and expensive local requirements and delays while local EIRs are assembled and implemented (**Recommendation 2**). **Recommendations 3-5** are aimed at assisting smaller and equity cultivators in getting through CEQA, either by exempting small farms from CEQA or creating an assistance program for smaller farmers to receive CEQA counsel and assistance directly from the state, rather than through local government, a service especially important given the lack of agricultural services provided to cannabis farmers. The State could also create a customer-service line with caseworkers to assist farmers with CEQA requirements in order to reduce consultant costs. Finally, under **Recommendation 6** localities maintain lead agency status under CEQA and the State would not conduct a second layer of CEQA review, as proposed in recent legislation. Recognizing that environmental stewardship is an environmental good, **Recommendation 7** provides CEQA compliance grant funds to go directly to smaller license-seekers.

Recommendations:

- 1) Allow a special dispensation for localities to opt-in to a State CEQA process for cannabis cultivation, where the State would be the lead agency.
- 2) If a locality has not conducted a Programmatic EIR, allow individual applicants to qualify for approval under the State Programmatic EIR.
- 3) Establish a statewide exemption for farms below 5,000 square feet in permit counties via a ministerial state license.
- 4) Now that CEQA is required of all new farms (that are not equity applicants) *prior* to cultivation (see Cannabis Trailer Bill), establish a no-interest loan fund for CEQA compliance measures and bridge funding while they wait for approval.

- 5) Staff a statewide call-in/virtual service for equity, legacy, and smaller farmers that would assist smaller farmers (under a half acre) in completing EIRs.
 - 6) Alternatively, if a local government has approved a project and completed CEQA review, allow for that project to receive a state license without a State-level CEQA approval (see SB1148)
 - 7) Create a statewide direct grant program for farms under a half-acre of total cultivated area, provided directly to licensees (rather than provided to local jurisdictions to then administer to licensees) to cover or match the costs of installing water storage, including ponds and tanks, transitioning to renewable energy such as solar power, and improving roads, as energy, water and erosion policies are obstacles to local and CEQA compliance for many cultivators.
-

3. Post-Licensure Conditions

This section advances recommendations on sustaining a cultivation sector that allows for farms of varying scales, secures rights and services assumed by other forms of agriculture, and has a secure relationship to the broader supply chain. It also addresses possible interventions into broader legal-market conditions.

Aim: Sustaining an equitable multi-scale cultivation sector

Challenge #1: Smaller farmers have limited ability to form cooperatives and benefit from the mutual protection, support, and market access they afford.

Research Findings:

Currently, smaller farmers are left to compete with large cultivation operations in an open marketplace and regulatory system that favors larger operators in overt and hidden ways. Smaller farmers cannot compete with the economy of scale of larger farmers. Further, it takes significant amounts of time, work and money for smaller farmers to find retail outlets (a task most distributors do not perform), brand their product, concoct a marketing plan, access consultants and information about regulations, learn about market conditions, and many other small but necessary tasks. Currently, each farmer has to duplicate these efforts on every single farm. Finally, the lack of appellation designations have left farmers without an ability to achieve rents for boutique product, thus placing them in direct competition with large producers.

Being a part of a cooperative enables farmers to avoid duplication of information gathering, farm administration, branding, and market access. It can also be an important way of sharing capital inputs, providing collective financial services (especially in the absence of consistent banking allowances), and moderating competition that produces a “race to the

bottom.” It also would allow smaller farmers an ability to achieve an economy of scale to effectively compete in the broader marketplace. This is even more needed now, as Type 5 “Large” licenses advance. Currently, however, the restrictions on forming a cannabis cooperative are too limited and cumbersome. As a result, few cooperatives have formed, despite a significant interest among farmers in them.

Recommendations 1-3 expand criteria of Cannabis Cooperative Association formation. This includes an increase of the maximum square footage above 4-acres of collective canopy. Given the upscaling of farm sizes in California since legalization, it may also be that the State wishes to increase the square footage an individual could hold up to a half- or full-acre and/or increase the restriction that only single license holders may participate. (In determining new thresholds it is important that the State consult small farmer organizations. We offer some limits below.) Further, it is important to consider upward limits of cooperative membership in terms of farm size to avoid capture (and subsequent dominance) by large farms and firms. Finally, a clear process for merging cooperatives could be made available by the State. **Recommendations 5-6** provide assistance to potential cooperative members and to assist equity applicants in forming cooperatives.

Recommendations:

- 1) Remove the 4-acre maximum of Cannabis Cooperative Associations entirely.
- 2) Increase the maximum area of any member from 10,000 square feet to 1-acre.
- 3) Allow members to hold more than a single license (up to one acre of total area).
- 4) Create a pathway for the merging of cooperatives if and when they choose to do so.
- 5) Hire or designate appropriate staff at the DCC to assist small farmers in forming cooperatives, to educate farmers on the benefits of forming cooperatives, and to make farmers aware of funding support for doing so (see next recommendation).
- 6) Designate an equity fund (in an amount to-be-determined) at the state level for cooperative-eligible cannabis license holders to apply to cover the administrative and fiscal costs for forming cooperatives.

Challenge #2: Smaller farmers will be disadvantaged in the marketplace once large cultivation licenses (Type 5) emerge and larger operators achieve another economy of scale in regulatory costs.

Research Findings:

It was the intention of Proposition 64 to foster a cultivation sector built upon small- and medium-sized firms and farms. With the effective removal of the 1-acre cap through license-stacking allowances, this aim was eroded. Now, with the advent of large, Type 5 cultivation licenses and the consolidation of up to half of the state’s approximately 8,000 stacked licenses into several hundred, the remaining smaller farms will be further disadvantaged. Large farms will be able to significantly reduce compliance, permitting, and licensing costs as they

manage one single license (instead of multiple smaller licenses). This will enhance large farm capacity to control more of the market and make them more attractive investments for firms that hope to consolidate control over California cannabis production and stymie competition from smaller producers.

Yet, the problems related to Type 5 large licenses are not limited to smaller farms. *All* farms are currently suffering under a crisis of overproduction. The amount of square footage licensed by the state far exceeds the capacity of California consumers to absorb the resulting product. Some back-of-envelope estimates put the proportion of product consumed to product produced at a ratio of 1:10. Exact numbers are difficult to ascertain by researchers and the public, since METRC and the State do not release production numbers. This over-licensing and over-capacity has sunk the price of cannabis and needs to be addressed.

Action is needed to secure the place of smaller-farm license holders if a balanced, multi-scale cultivation sector is to be achieved. Action is also needed to stabilize conditions of overproduction. Though we expect the State to proceed with Type 5 licensing for existing license holders, the State could freeze *further* Type 5 licenses altogether (**Recommendation 1**). Other options exist to: strictly enforce measures to ensure Type 5 firms do not acquire distribution licenses (**Recommendation 2**); retire Type 5 licenses that are no longer operable (**Recommendation 3**); set an upward limit on square footage for Type 5 licenses at the current largest license level by pegging the maximum square footage allowed to the current largest license holder, thus allowing for a reduction in total square footage in production (**Recommendation 4**).

Recommendation:

- 1) Permanently freeze Type 5 large licenses after current license holders are allowed to consolidate. Modify regulations so that only operators who hold valid, stacked contiguous cultivation licenses by December 31, 2022 are eligible for a Type 5 license.
 - a. Freeze new applications for Type 5 licenses until either of the following occur:
 - i. Federal legalization and the legalization of cannabis exports outside of California.
 - ii. Demand exceeds available supply in a year period, based on METRC data. If cannabis sales from retail, consumption lounges, or other outlets increase to the point of exceeding supply, allow new Type 5 license applications.
- 2) Ensure strict enforcement of the restriction found in B&P Code Section 26061(d) prohibiting a Type 5 license from holding a Type 11 (distribution) or Type 12 (microbusiness) license, designed to prevent monopolistic behavior through vertical integration.
- 3) Retire Type 5 large licenses after current licensees stop operating. If Type 5 license stops operating for a period of more than 30 days, changes ownership or executive team, or

voluntarily withdraws license, then the Type 5 license is retired, and no new license replaces it.

- 4) Establish a maximum square footage to Type 5 licenses by pegging the maximum square footage of Type 5 license holders to the currently existing largest license holder and disallow other license holders from exceeding that capacity. For example, if the largest license is 100 acres, cap Type 5 acreage at 100 acres.

Challenge #3: Cannabis farmers have trouble accessing financial (e.g. credit, loans, and financial services) and technical assistance (e.g. administrative, continuing education, latest research findings, information resources) that other agricultural sectors benefit from.

Research Findings:

Lack of access to capital is one of the most significant barriers to entry in the cultivation sector, especially for small businesses now that CEQA is required prior to the granting of a non-equity state license and provisional licenses will expire in the next few years. In sundry ways across the state, cultivators have suffered from lack of financial services and capital. Some counties suspended or stalled permitting processes, thus preventing farmers from planting, even as they paid fees to keep corresponding licenses and permits active, sometimes for years on end. Others have been affected by fires or other natural disasters, often resulting in crop or property destruction. Many just need operating capital as they weather dismal wholesale prices and unmarketable and expired product stock. As the market worsens, the value of licenses for a property have become liabilities in some areas. Not only will banks refuse to loan on cannabis-related properties, thus forcing property sellers to seek high-interest hard money loans or finance risky owner-carry sales, but many farms are having to retire their cannabis license altogether in order to even sell their property. Some, particularly outdoor farmers, need bridge funding between planting and harvest times. Time is literally money, for farmers, and their lack of access to financing contributes to the failure of farms and/or the loss of control of farms as farmers are forced to take on private, profit-driven investors, who can take away decision-making power from farmers in ways that often impact labor, environment, and surrounding communities. Since legalization, farmers have self-financed the transition to operation under licensure, but by numerous accounts, those funds have already run dry, forcing farmers into tough decisions. These are some of the myriad problems that arise from lack of financial services.

Likewise, cannabis farmers are currently denied publicly funded technical assistance offered to farmers of other crops by the Cooperative Extension Service and other farm service providers. Cooperative Extension is part of the land grant college system. Originally designed as a conduit between rural communities and university research, Cooperative Extension can bring community-identified research needs to public universities and extend research findings to local communities. Over its more than a century history, Cooperative Extension has evolved, with “Specialist” researchers at land grant universities and “Advisors” who service all counties across

the state. For crop and livestock farmers, this means that they can bring production questions, challenges, and research needs to their local Cooperative Extension Advisor. This technical assistance - on a wide variety of questions ranging from production practices to regulatory navigation to market access issues - is provided readily and freely to many farmers, even now cannabis farmers who grow hemp. Yet those who grow cannabis are excluded from accessing this information, advice, and assistance. Cannabis cultivators are left to navigate new administrative systems on their own or with the expensive assistance of consultants, resulting in significant amounts of attrition during the regulatory process, if not avoidance of the regulatory system altogether. For many, basic internet service is a challenge not only for achieving licensure but also for administering METRC, which farmers report is confusing and lacking in customer service. Extension and other agricultural services could assist with these matters.

All of these challenges do not exist in other agricultural sectors. First, farmers of other crops have access to regular banking, as needed, since their crops and livelihoods are not federally illegal. But perhaps more importantly, other farmers have access to robust credit, loans, and other financial service programs through the US Department of Agriculture (“USDA”). While we understand the State (through the Treasurer’s Cannabis Banking Working Group) has passed on creating a bank for cannabis business in California, the State could enact a more limited program that would parallel the low interest loans offered through the USDA’s Farm Service Agency (FSA) and sustainability infrastructure cost-sharing program through the National Resources Conservation Service (NRCS). This program (**Recommendation 1**) should be narrowly tailored to support smaller farms, socially disadvantaged farmers (as defined by the USDA), and equity-qualified farmers. (In considering this specific targeting of disadvantaged populations, the State may look to the Cannabis Social Equity Fund of Massachusetts ([S. 3096](#)) that provides grants and loans to social equity participants.) Limiting who can qualify for these programs is important for preventing market inequities and furthering aims of social equity and inclusion.

This loan program could be structured as a revolving credit fund for low-interest loans, which would be replenished by participants and extended to new participants. This fund would allow cultivators the ability to buy and sell properties without facing discrimination by other financial institutions. This fund could also provide cost-share programs (e.g. to upgrade equipment and undertake capital-intensive land improvements that enhance environmental protection), grants, and wrap-around technical and information assistance for qualified participants. The State could designate part of this fund to support fixed-rate low-interest mortgage loans (or at least mortgage loans equivalent to current rates). An existing variation of this is the City of Oakland’s Property Purchase Grant that is part of their social equity program. In its second year, this RFP and grant program awards \$2M to assist equity applicants to purchase property that can support multiple equity licensees and equity workers. The State could provide appropriate staffing to loan officers who would provide technical assistance to qualified farmers to compile business plans and other necessary steps in accessing funds (**Recommendation 2**).

USDA programs are renewed every 5 years through the federal Farm Bill and next year (2023) will be the next renewal. Unless federal legalization occurs before then, or cannabis is legalized and immediately classified as an agricultural crop (which we do not estimate is a high likelihood), it will be at least 6 years before USDA programs would be extended to cannabis—if they ever are. By creating a parallel program, targeted toward smaller, socially-disadvantaged, and equity farmers, California can create a cutting-edge program that advances a new kind of equitable and sustainable agriculture for the 21st century.

Recommendation 3 extends other kinds of agriculture-related technical assistance to cannabis farmers through the University of California’s Agriculture and Natural Resources historic Small Farms Cooperative Extension program.

Recommendations:

- 1) Establish a revolving credit fund for farmer credit, loans, cost-share grants, and mortgage assistance. Ensure strict eligibility requirements that enhance social equity and environmental sustainability.
- 2) 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.
- 3) Provide cannabis farmers free technical assistance modeled on the University of California’s Agriculture and Natural Resources historic Small Farms Cooperative Extension program.
 - a. Before federal legalization, the DCC may consider partnering with Resource Conservation Districts who generally do not receive federal funding (as Cooperative Extension does) and may therefore be able to expand technical assistance around cultivation to cannabis farmers.
 - i. Alternatively: The State could fund Cooperative Extension Advisor positions at the state-level (or a parallel program) dedicated to assisting farmers who grow cannabis with technical, production, and farming questions.
 - b. 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).
 - c. Facilitate off-line licensing assistance for farmers with limited internet access.
 - d. Provide training and user services and assistance with METRIC track-and-trace system.

Aim: Afford Cannabis Producers Similar Rights, Treatment, and Services as Other Agriculture

Challenge #4: Cannabis producers are currently denied “ag passes” to access crops during wildfire evacuations.

Research Findings:

On a statewide basis, cannabis is grown in high-risk wildfire zones, more so than any other agricultural crop (Dillis, et al. 2022). Projected production losses from smoke and ash impacts during the first four years of licensed production (2018-2021) were at times as high as half of a county’s yearly crop and as much as 20% of statewide production in a single year. Cannabis farmers report active washing and removal of ash from growing crops as the most effective form of mitigation against these impacts and over half of cannabis farmers report using this approach. Therefore, whenever possible, continued property access during wildfire evacuations is likely the single-most effective approach to combat the effects of wildfire on the California cannabis industry.

Recommendation:

- 1) Sponsor or administer an Ag Pass program (Shapero & Moritz 2020) for cannabis farmers to access crops following wildfire evacuations (adherent to roadblock protocols).

Challenge #5: The definition of cannabis farms as commercial operations burdens farmers with numerous and expensive requirements that no other farm (much less farms with little access to loans and financing) is required to do in California

Research Findings:

Currently, cannabis farms are designated as commercial operations, which sets a very high compliance standard for matters like roads and buildings. These high compliance requirements necessitate that farmers take on significant costs, like building roads for two-way traffic, ensuring all necessary culverts are built to last 100 years, making sure windows are made to specification, or, under some conditions, ensuring that ADA-accessible bathrooms and entryways are present, even though these “commercial” farms are prohibited from hosting the public on-site, much less conducting on-farm sales or consumption. To meet these demanding standards, farmers either have to drain personal savings, take on investors, or skirt the legal system in varied ways. These compliance requirements are very difficult to meet financially, especially in market downturns, and the State may be creating unintended consequences (e.g. non-compliance, labor violations, etc.) by maintaining this commercial standard for farms.

The State could redefine cannabis farms from commercial to agricultural (or “ag-like”; see below). In recommending this, we are aware this redefinition may pose other difficulties in relation to the definition of cannabis as an “agricultural product” and not an “agricultural crop.” In our discussions at the retreat, we are cautious to advance recommendations that entirely redefine cannabis as agriculture because a cascade of other stipulations may follow, many of which can accentuate some of mainstream agriculture’s destructive effects on the environment, in

particular. The exceptional treatment of cannabis as a different kind of agriculture, then, could allow the State to innovate an “ag-like” designation for cannabis that affords it ag-like rights, treatment and services, while retaining the ability to create higher environmental standards for cannabis than other forms of ag. Therefore, **Recommendation 1** is to create an “ag-like” definition. **Recommendation 2** is to provide an exemption to commercial-level compliance for farms beneath a certain size threshold.

Recommendation:

- 1) Reclassify cannabis farms from “commercial” to “ag-like” or a similar designation that retains environmental standards while reducing unaffordable, burdensome, and often unnecessary compliance requirements.
- 2) If this is infeasible, create an exception for commercial-status compliance requirements for farms below a certain (to-be-determined) size and workforce.

Aim: Remake Farmer’s Relation to Consumers and Supply Chains

Challenge #6: Small farmers are not able to sell directly to consumers.

Research Findings:

Smaller farmers often have difficulty in accessing markets and connecting with consumers. The urgent tasks of farming and farm administration often prevent farmers from being able to brand, market, and build relations with retailers and distributors. Having an ability to sell directly to consumers, as detailed in AB2691 for instance, would allow smaller farmers to hold events to sell directly to consumers (see **Recommendation 1**). Further, while larger farms are often able to afford multiple license types that allow them a vertically integrated pathway from production to sale, smaller farms struggle to afford these same licenses. The microbusiness license has helped in this regard. A further measure to enhance the ability of farmers to access consumers would be to: 1) allow on-farm direct sales to consumers (**Recommendation 2**) and 2) allow a designation similar to a Community-Supported Agriculture operation to allow for a subscription-based relation between growers and consumers (see AB224 on CSAs generally; also see **Recommendation 3** below). Finally, the State could allow cannabis farmers to have farmstands (**Recommendation 4**), like most other agriculturalists in the US are guaranteed by right, and could create the ability of farms to produce value-added products as modeled under AB2168. Participating farmers (under a 1-acre cap, say; see **Recommendation 5**) could be granted an exception to the requirement that product pass to distributors to be tested. Instead, they could submit product directly to testing firms to ensure safety and quality (**Recommendation 5**). For any of these recommendations, we encourage the State to ensure that the administrative process and costs are minimal and similar to other agricultural policies (**Recommendation 6**)

In initial research findings from DCC-funded projects, we have seen the numerous problems with distributors—ruined product; broken contracts that are too expensive to litigate; lack of marketing services; expensive mark-ups that depress wholesale prices to farmers and route profits to distributors; and significant instability in the distribution sector, which impacts farmers negatively. Meanwhile, larger firms are able to create their own distribution operations with dedicated marketing efforts, that allow them to dominate retail space. Further, early reports on the ground reflect that the tax cut is often being captured by distributors and other downstream market actors, instead of farmers, who continue to receive very low wholesale prices. The methods described above would give small farmers a better foothold in the cannabis market by affording them the ability for direct marketing and sales—a capacity other farmers take for granted. By allowing this kind of exception for smaller farmers, they would also be able to realize the benefits of the recent cultivation tax reprieve by selling directly to consumers and bypassing downstream market actors that appropriate tax reductions.

Recommendations:

- 1) Enable farmers to have sales events, as detailed in AB2691.
- 2) Allow on-farm direct sales, including farmstands, to consumers for farms below 1-acre.
- 3) 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.
- 4) Allow cannabis farmers the ability to have farmstands with cannabis flower and value-added processed goods, so long as they accord with parallel standards established in AB2168.
- 5) 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.
- 6) Conduct review to ensure that these options do not require large or cumbersome administrative hurdles or costs higher than those for other agricultural crops.

Challenge #7: Consumers are not educated on production methods, environmental impacts, or equity and farmer status.

Research Findings:

Though we have not analyzed data on retail market sales, it is our understanding from research on cultivation that consumer knowledge of sustainably-grown and outdoor cannabis cultivation is weak. Farmers who produce outdoor and sustainably-grown cannabis have little way of differentiating their products from other cannabis. This is unfortunate for outdoor farmers who are not able to quickly respond to changes in consumer preferences, since the growing season is longer than other growing modes. It is also unfortunate for sustainably-grown cannabis farmers, who may select genetics crafted to their particular growing conditions and input requirements (e.g. water, fertilizers, pesticides, electricity) and cannot easily switch to other

strains. For many farmers, the pressure to produce high-THC cannabis has also eclipsed production for other cannabis markets, like full-spectrum CBD and product containing other cannabinoids. This market tendency could have resounding effects on the genetic diversity and medical potential of cannabis for some time to come. Therefore, we recommend an expansion of consumer education programs on outdoor and environmentally-sustainable cannabis.

Recommendation:

- 1) Expand the DCC’s “Get #weedwise” statewide public information program to provide consumer education on environmental impacts, lighting typologies, carbon footprints, etc.

Aim: Broader Regulatory & Market Reform for Stability

Challenge #8: The current tax system presents farmers an additional cost burden but for small farmers the current tax system is also inequitable and disproportionately disadvantages them over large scale producers.

Research Findings:

The State recently recognized the need to alleviate cost pressures on cannabis cultivators by eliminating the cultivation tax. Some localities have recently reduced cultivation taxes, too. This move demonstrates that localities recognize the burden that taxes present to small farmers. Particularly when localities leverage a privilege tax prior to planting, these taxes (in addition to the costs of production and compliance) can be prohibitive for operations with little money to advance. The State might consider (**Recommendation 1**) exploring options to encourage or even require cultivation tax breaks when sustainable farming practices and other land stewardship practices are agreed to in advance, particularly in places that have a privilege tax, or a tax prior to cultivation, often based on cultivation area (**Recommendation 2**). Privilege taxes and taxes based on square footage can undercut outdoor and mixed light cultivators who harvest only once or a few times a year versus indoor growers who are able to cultivate all year round. Our research has shown that taxes based on canopy area incentivizes cultivators to grow more and further contributes to the current crisis of overproduction. A tax on production amount would be more equitable across growing modalities.

Humboldt’s Water Storage and Conservation Grant Program and Renewable Energy Grant Program, funded through DCC’s Environmental Compliance and Equity Fund, could serve as a model for a statewide program to pilot this kind of relief. Localities that receive assistance from CDFW or other state environmental agencies for cannabis enforcement could be required to have their own local tax relief program for sustainable stewardship practices for licensed farmers. In addition to tax relief, the tax structure could be restructured in light of current inequities that disadvantage smaller farms.

Recommendations:

- (1) Provide tax breaks for environmentally sustainable farm management practices that enhance biodiversity and reduce greenhouse gas emissions (i.e., agroecological, regenerative, conservation, diversified practices)
- (2) Explore State options to encourage or require localities to restructure taxes so they are based on actual production rather than intended cultivation (privilege tax).

Challenge #9: All cannabis cultivators are negatively affected by overproduction.

Research Findings:

California's existing cannabis market and licensure system has created conditions of overproduction that are negatively affecting cultivators of all scales. Commonsense predictions suggest that this period of low prices will force most cultivators, particularly smaller ones without an economy of scale, out of business. The result will be consolidation of the cultivation sector.

The reasons for overproduction are multiple, but one significant reason is a state regulatory system that has licensed far more cultivation area than the legal market can absorb. Though we do not have exact numbers on this because METRC figures do not seem to be accessible to researchers or the public, the results of overproduction are evident in the historically low prices of wholesale cannabis, which are down by approximately 80-90% since California legalized in 2016. This decline in wholesale prices to producers has not manifested as savings for consumers. Rather, it has been captured by state and local governments through fees and taxes and by downstream market actors, like distributors and retailers, who add significant mark-ups to cannabis as it nears the point-of-sale. The result is the devastation of the cultivation sector and the mass exit of cultivators, particularly in the last year as farmers sit on two, maybe three years of unsold product.

To address this crisis of overproduction and its universally negative effects on cultivators, the State could implement an allotment system that draws from the example of tobacco, fisheries, and other resource regulatory regimes (see Polson & Bodwitch 2021). In brief, an allotment system would create farmer allotments, which are a percentage of the total market for cannabis. This allotment is calculated by a farmer's licensed cultivation area divided by the total area in current production. Then, each year the State would calculate an estimated total product needed for the coming year. Each farmer would grow a portion of that total according to their allotment amount. The State would then calculate an average cost of production for the year that incorporates average inputs (e.g. living-wages for workers and inputs like fertilizers, soil, water, energy), average cost of compliance, permits and fees, average environmental protection costs (according to consistent and high standards), a reasonable income for the farmer (set at a rate equivalent to other similar farmers), and other costs as determined. This average cost would then be the opening bid for a State-facilitated, farmer-funded auction along the lines of the tobacco allotment program. At this auction, which could happen in regions across the state, the price of

cannabis could be bid upward by distributors from that starting price. In this way, the auction system would ensure a minimum livelihood for farmers, environmental protection, labor protection, and regulatory compliance. Unsold, excess product could be purchased by a farmer-supported fund that would then sell it later or calculate it as a loss folded into the following year's opening bid.

To protect genetic diversity and ensure a marketplace for different kinds of product, cannabis could be graded prior to sale according to a scale that ranges from boutique Grade A product (which could retain the farmer's brand and/or genetic strain) to bulk cannabis flower for pre-rolls to low-grade cannabis intended for secondary processing.

To avoid consolidation within the allotment-pricing system, a maximum allotment limit could be placed on ownership by any individual, firm, or networked entity. Further, to avoid a situation of underproduction, there could be a "use-it-or-lose-it" stipulation that requires farmers to produce their allotment or have their allotment reduced by the amount underproduced. Temporary exceptions of up to 3 years could be made for life events and an annual exception could be made for ruined crop or natural disaster. This variable amount could be factored into production estimates. If an allotment owner retires or stops cultivating, they could sell that allotment to another person or retire it according to California's consumption needs (or national/international consumption needs, if federal legalization advances). A public fund (as described through the farming credit fund above) could exist to help equity, socially-disadvantaged, legacy, and small-scale farmers buy into that allotment system. To avoid rent-seeking behavior, licenses could not be leased to others.

This system could be advised through the active participation of California's cannabis farmers by allowing every license holder a vote in a common forum, which would have the power to alter the allotment system. Licensees would have say over the development of the program aspects, in consultation with government administrators. In return, they would receive minimum prices, stable livelihoods, healthy environments, supported workers, and derivative benefits to surrounding communities. The tobacco program lasted for over 60 years, with farmers voting every 2 years to renew it. USDA officials have called the program the most successful farming program ever and it supported hundreds of thousands of smaller farmers, even as other agricultural sectors consolidated and small farmers disappeared.

The system aligns production amounts with consumption and, therefore, should appeal to law enforcement groups that have rightfully pointed to overproduction as fueling the underground market for cannabis. As prices stabilize, there would be less diversion of legal product to the underground market, which our research has shown is significant. It is possible consumers may see higher prices if distributors and retailers continue to add significant mark-ups. That said, the current system has not appreciably decreased prices in the aggregate, to our knowledge. If designed correctly, the program could pay for itself through farmer fees. Finally, an allotment and minimum-pricing system could serve as an agricultural model that bucks the historical trend in agriculture toward environmental degradation, cheap labor, maximum profits, and industrial consolidation. In doing so, California could point the way

toward more sustainable, secure supply chains for producers, the environment, and the communities they support.

Recommendations:

- 1) Establish an allotment system by:
 - a) 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);
 - b) Grant an allotment to each license holder (the percentage of total production that accords to their cultivation area and type);
 - c) Establish a small fee for cultivators to fund state-run auctions and a rotating fund to purchase excess/unsold product;
 - d) Establish a voting forum of farmers to guide development of the program.
-

Limitations

The recommendations above do not exhaust all the challenges or the entire range of options available to the State at the current juncture. We identified several challenge areas that we cannot address through currently-existing research. We also discussed possible policy options that are beyond our collective expertise. Those challenges and policy options include the following:

- The need for crop insurance, solutions to which likely require federal legalization;
- The need for consistent, safe banking, which also will likely require federal legalization;
- The potential for hemp and full-spectrum cannabis markets to be merged, which we suspect would have devastating effects on cannabis markets and producers, in particular;
- The potential for peer-to-peer inspections, which may ease tensions between government inspectors and cultivators and build sector-wide norms;
- A simplified process for selling/transferring licenses that guards against consolidation and market-shifting buy-outs;
- The need for measures to address “underconsumption,” which largely result from cannabis deserts where retail has been curtailed or banned; and
- The need for robust labor protections that do not overwhelm farmers’ financial capacities (a problem for agriculture in general).

This report does not include systematic citations, given time constraints on its assemblage. We are happy to provide citations for any particular recommendation or set of recommendations, as needed. We also encourage the DCC and other interested parties to consult

the interim reports for current DCC-funded projects and to visit the site of the Cannabis Research Center at <https://crc.berkeley.edu>.

Finally, throughout the report we have offered considerations on size limitations that would rebalance the cultivation sector toward smaller-sized farms. These size considerations are simply recommendations and should be determined in consultation with stakeholders, particularly small farm organizations. We also encourage the state to evaluate and differentiate size limitations in relation to type of growing (indoor, mixed light, outdoor). Instead of setting hard amounts or square footage thresholds, the State could define size according to the average or median licensed cultivation size. For instance, “smaller” farms eligible for a revolving credit fund could be defined at or under 40% of the average farm size (i.e. the smallest 20% of farms) for any type of growing mode (indoor, outdoor, mixed light).

Conclusion

These recommendations are offered up at a critical moment for California’s world-renowned cannabis and the farmers that made it so. We offer them in a spirit of possibility. We hope that California might create not just a thriving market and functional regulatory system but that California’s regulated market will become a model nationally and globally. The chance still remains to build justice, equity, and parity for all farmers in the wake of a century of cannabis prohibition. Moreover, the opportunity beckons to create a different kind of agriculture that sustains farmers, workers, communities, and the environment.

Corresponding Author: Michael Polson @ mpolson@berkeley.edu