

## 2022 Priority Research Topics

The Department of Cannabis Control (DCC) is prioritizing the funding of research topics that advance California's understanding of cannabis, address research gaps and inform policymakers.

The prioritized topics would examine the health of the cannabis industry, California's legacy genetics, cannabinoids and potency, monopolies and unfair competition, and medicinal use of cannabis. These topics support areas of key importance for ensuring a balanced and successful implementation of cannabis legalization – from economic vitality to public health to preservation of the state's cannabis heritage.

These priority research topics were developed in consultation with other state agencies and were selected to support and advance the understanding of the implementation of Proposition 64 (as required by Revenue and Taxation Code), impacts of subsequent policy changes, and identified emerging policy deficits.

While research project proposals that address all or a portion of a priority research topic will be prioritized for funding, DCC will also consider research proposals that address other topics that further public understanding of the effects of cannabis legalization.

It is the Department's hope that the research resulting from these grants will advance the body of scientific knowledge about cannabis and prove beneficial not only to California policymakers, but also to those across the nation and world.

### Priority Research Topics

#### Cannabis Potency

The Department of Cannabis Control is seeking research proposals to understand and evaluate how varying cannabinoid content in cannabis affects physical, mental and behavioral health. Research topics of interest include, but are not limited to:

1. **Evaluation of cannabinoids:** Research that evaluates common and novel cannabinoids to determine whether the cannabinoid is intoxicating, whether and how the method of use or consumption influences the intoxicating effect, and clinically-significant thresholds for defining high and low concentration (particularly for THC).
2. **Cannabinoid concentration and health effects:** Research that examines the relationship between cannabinoid concentration (particularly THC) and health effects. Studies examining short-term effects and/or long-term effects will be considered. Research must consider, at a minimum:



- a. Type of cannabinoid
- b. Amount used
- c. Frequency of use
- d. Method of consumption
- e. Age of initiation and use

Studies should examine both beneficial and harmful health effects, including on cognition, memory, anxiety, depression and other physical, mental and behavioral components of health. Research proposals must consider how to distinguish associations, correlations and causations, where appropriate, including how to clearly convey those findings in research reports to support public understanding.

3. **Drivers of change:** Research that evaluates the efficacy of policy and/or economic models as a means to drive behavioral and consumption changes that would improve public health. This may include, but is not limited to, efficacy of limiting or capping potency in products, advertising restrictions, or tiered taxation. Research must consider how such policy changes would affect consumer switching to or from the illicit market, if at all, and include evidence of historical implementation of such policies in non-cannabis markets.
4. **Cannabinoid interactions:** Research that examines the mechanism of interaction between various THC and CBD ratios, how the ratio of THC to CBD affects intoxication and health effects, and whether the certain ratios of THC and CBD (or an entourage effect including other cannabinoids) may attenuate adverse effects, including for higher-potency products.

Researchers are encouraged to consider study designs that will provide the strongest possible evidence, including experimental and observational studies using human subjects or animal (in vivo) research models, as appropriate, and may request additional time for the project term, up to five years, where justified by study design. Research proposals relying on existing studies should consider how the quality of cannabis used in the studies compares to cannabis sold in California's legal marketplace, particularly whether the cannabis would meet the state's testing requirements, and how any disparities may affect study conclusions.

## Health of the Cannabis Industry

The Department of Cannabis Control is seeking a research team to assess the condition and health of the cannabis industry in California through July 1, 2024, as required by Revenue and Taxation Code section 34020.1.

The research proposal must include all the following:

- Information or analysis concerning the potential expansion or contraction of the cannabis market in the state, which may include information concerning any increase in retail cannabis sales and activity in the illicit market.



- Information on the viability of cannabis businesses in the state, and the ability to continue to operate cannabis businesses in the state, from a general and equity licensee standpoint.
- The impacts of the suspension of the cultivation tax imposed by paragraph (2) or subdivision (a) of Section 34012, including whether that suspension resulted in a decrease in retail cannabis prices or increased participation in the legal cannabis market.

The research must contextualize information about the cannabis market by providing modern-day and/or historical comparisons to similar indicators and situations in other markets. The comparisons may also include examination of the mechanisms used by states to provide support to businesses in these similar markets and their effectiveness.

The research report must include recommendations for how to define and measure success within California’s cannabis market, including data that may be used to monitor the ongoing health of the market. Recommendations to strengthen the state’s legal cannabis market may also be included.

## Monopolies and Unfair Competition

The Department of Cannabis Control is seeking research proposals that identify state, local or business policies and practices that may have any of the following effects in California’s legal cannabis market:

- Contribute to or encourage unfair competition or the formation of monopolies
- Create unreasonable restraints on competition
- Otherwise enable the creation of monopolistic power

The research should also include recommendations related to possible policies that would support reasonable competition, reduce anti-competitive behavior, uphold the ability of small businesses to compete in the legal market, or prevent the creation of monopolies within the California market.

## California Legacy Genetics & Genetic Sequencing

The Department of Cannabis Control is seeking research proposals that will identify and preserve the history, value and diversity of California legacy cannabis cultivars and the rich experience of its legacy cultivation community, and enable, enhance and guide the understanding and application of cannabis genetics to the greater body of research and science-based public policy development.

Research should consider both quantitative and qualitative data related to California cultivars, varieties or strains, including but not limited to:

- Genomic sequencing of plant strains



- Chemical profiling for cannabinoids, terpenes and other phytochemicals of importance
- Physical characteristic profiling, including growing environments and methodologies where applicable
- Social and genetic history
- The narrative history and stories of the individual(s) associated with the creation and preservation of cannabis genetics in California

Research proposals must include:

- An outreach and engagement plan that is culturally sensitive
- A method by which breeders may protect the intellectual property of each cultivar

Further, research proposals should strive to make data available for access by researchers, policy makers and the public through the creation of resources such as a publicly accessible cannabis database or utilization of existing scientific or botanical databases, and review how the prohibition and criminalization of cannabis cultivation impacted the overall findings of the research, including but not limited to the diversity of cultivars and breeders.

## Medicinal Use of Cannabis

The Department of Cannabis Control is seeking research proposals that survey medicinal use of cannabis by qualified patients in California to support policy making that supports and ensures the maintenance of patient access to needed types and quantities of cannabis and cannabis products. The research scope should include the following:

- Quantification of the number of medicinal cannabis patients statewide
- A survey of the ailments for which cannabis and cannabis products are used
- Examination of the types and quantities of cannabis and cannabis products used, including cannabinoid content and combinations, and the ailment it is used for
- Examination of mechanisms by which medicinal patients currently obtain cannabis, including whether by physical retail storefront or delivery services, and whether through legal or illicit/informal sources

Research may include recommendations for strengthening patient access to legal, medicinal cannabis products and for preserving California's first-in-the-national medicinal cannabis market.

