

Calculating California's MCRSA Cannabis Production Requirements for 2018

By Jason Browne (Expert Witness / Cannabis Industry Consultant)

Greetings,

After having reviewed the ongoing regulatory developments under M.C.R.S.A. at the State and Local levels, it has become clear to me that California's Licensing Agencies may have no idea what amounts of cannabis the legal consumer market currently requires. This information is crucial in determining the total number and types of cultivation licenses that California should issue (beginning in 2018), as well as the corresponding number of dispensary and manufacturing licenses that State Licensing Authorities will issue. If California's newly regulated medical cannabis industry is not tasked with providing enough cannabis to accommodate the medical needs of medical consumers, the Medical Cannabis Cultivation Program will actually cause unnecessary diversions to, and from, the criminal market. Due to the De-facto and actual cannabis bans that many local jurisdictions are expected to continue enforcing, it is essential that every local jurisdiction having Licensed Dispensaries be tasked with providing enough cannabis to meet the needs of qualified patients from nearby banned jurisdictions. This will require C.D.F.A. to actively research patient needs and to offer statewide and regional production goals based on those needs. In the interests of fairness to the industry, and in order to ensure the success of M.C.R.S.A., I'm offering you the correct methodology required to determine the aggregate needs of patients', in order for your agencies to know what California's ongoing cannabis production requirements really are:

1) Determine # of Qualified Patients in California. According to conservative estimates conducted by California NORML and by independent California cannabis physician specialists, the number of patients who have qualified under the C.U.A. in the past year is around **3 million**. This number is probably lower than the actual amount, but it is most certainly not an overestimation, and should prove to be a good starting point for C.D.F.A. to determine California's current cannabis needs.

2) Determine the methods of delivery employed by patients to consume their cannabis, based on the percentages of cannabis they inhale, consume in edible form, and consume in solution, topical and concentrated forms. While these numbers may be elusive at first, polls of existing dispensaries can provide a window to this information now. For our initial purposes here, until we plug in more detailed information, let's assume that 1/3 of cannabis is inhaled (smoked or vaporized), around 1/3 of cannabis is used in edible forms (foods and beverages), and around

1/3 of cannabis is used in solutions (tinctures), in concentrated forms (keif and charas, hashish, hash oils and waxes, etc.), and in topical forms (salves, ointments, etc.). This is to show you how to apply the math, and when we have actual figures from dispensaries we can plug those numbers into the equation. But for our purposes here, these numbers are a good starting point. It's likely that this is a low estimate, because more than 1/3 of patients may prefer these other methods of delivery to inhaling.

3) Determine the average use patterns of patients, per annum. For this step, we only need to look at the amounts that patients inhale (smoke or vaporize), and we can use this number as our base (for reasons which are explained in #4). Based on research conducted by numerous cannabis physician specialists, the average amount of cannabis consumed by 70% - 80% patients in California, who use inhalation as their primary method of delivery, is **3 pounds of cannabis per year**.

Obviously, the availability and price of the cannabis are also factors to consider, but this figure represents how much cannabis patients tend to require for their medical purposes. If they grow it themselves, this is how much they use. Factors such as price and availability are directly related to the success or failure of this Program. The more cannabis produced within the Program, the lower the price will be to consumers, and the more they will be able to purchase their entire supply from Licensed Dispensaries. .

Also worth note, only the processed flowers (buds) are counted for purposes of inhalation, as "usable" cannabis under the M.M.P.A. For the purpose of determining amounts of inhaled cannabis, the leaves are not used and their weight does not count here. They are, however, used in the manufacturing process, and can be included for that purpose (see #4).

4) Determine the amounts of raw, dried cannabis required to manufacture the various plant conversions that patients consume. As an Expert Witness, I have firsthand knowledge in this subject. It requires around **4 times** the amount of cannabis that a patient would inhale, in order to manufacture a comparable dosage in edible form. Likewise, it requires at least **10 times** the amount of cannabis that a patient would inhale, in order to manufacture a comparable dosage in concentrated form, in solution form, or in topical form. It's worth noting that both the dried leaves and the dried flowers can be used to manufacture cannabis plant conversions.

5) Now apply these figures into a simple calculation, in order to show the aggregate medical needs of all qualified patients in California, for the calendar year 2018:

1 million patients who primarily inhale x 3 pounds per year = 3 million lbs. (buds only)

+

1 million patients using edibles x 12 pounds per year (3 lbs. x 4 to make) = 12 million lbs.

(The amounts of leaves and flowers produced by cannabis plants is roughly equivalent, so this figure represents **6 million pounds of buds** and **6 million pounds of leaves**)

+

1 million patients using solutions, topicals & concentrates (3 lbs. x 10 to make) = 30 million lbs.

(The amounts of leaves and flowers produced by cannabis plants is roughly equivalent, so this figure represents **15 million pounds of buds** and **15 million pounds of leaves**)

= 45 million pounds of cannabis (24 million pounds of buds and 21 million pounds of leaves)

A more detailed analysis can be provided regarding each different type of manufacturing and the exact ratios between dried plant weight and the equivalent dosages for each product. This figure provides a very basic understanding of this subject, but it's accurate enough to indicate why any artificial limitations to the number of cultivation licenses (or any other licenses under M.C.R.S.A.) are a bad idea: Because every pound of cannabis represented here that is not produced and sold by licensed operators, will literally incentivize the "prohibition market".

6) There are other factors to consider, such as: The monthly breakdown of these figures; The amount of time it will take for the industry to ramp up enough to provide cannabis to every patient in California; increases to the qualified patient population, and; policies regarding the secured storage of excess cannabis during times of overabundant supplies, in order to maintain stores in between harvest times, and during times of dwindling supplies. However, these matters will be addressed through adjustments within the market itself, and are not factors requiring any interventions by the State at this time.

Additionally, should California ever legalize cannabis for adult use, the number of consumers will increase dramatically, even though the amounts required by individual recreational users will likely be far less than those of individual patients. If proposition 64 passes in November, the amounts of legal cannabis required in California will become substantially higher.

7) Determine the amounts of cannabis flowers that plants produce. I have over 20,000 hours of experience in the cultivation of cannabis, in all stages of growth and in all mediums. This includes experience with determining the yields of plants, based on methods established by our own federal government (D.E.A.). In outdoor farms, a cannabis plant can produce an average of **1 ounce of flowers per square foot of plant canopy**. This takes into account the high end of 2 ounces per square foot, and the low end of ½ ounce per square foot. For indoor farms, this figure only applies if the lighting is equivalent to 100 watts per square foot of plant canopy *.

8) Determine the approximate area of plant canopy required to produce California’s annual supplies of cannabis:

24 million pounds (384,000,000 ounces) / 1 ounce per sq. ft. = 384,000,000 square feet of plant canopy.

9) In order to determine how many licenses, in each category, are required to achieve these results, it will be necessary to calculate the following:

A) How many cities and counties are moving forward with licensing under M.C.R.S.A.? They represent 100% of the cultivation licenses that will be required, in order to produce this amount of cannabis for the entire state patient population.

B) What are reasonable breakdowns for Type 1, Type 2 and Type 3 Licenses, in each of those jurisdictions? Remember, Type 1 farms can produce up to 5000 square feet of plant canopy, Type 2 farms can produce up to 10,000 square feet of canopy, and Type 3 farms can produce up to 43,560 square feet of plant canopy.

C) What is the best equation for issuing cultivation licenses, in conjunction with the number of dispensaries and manufacturers that are licensed, at any given time? This requires the coordination of 3 separate State Licensing Agencies, as well as dialogue with all Local Licensing Agencies.

A very basic breakdown of the number of cultivation licenses required, focusing only on 9(B), and disregarding, for the moment, the unknown factors represented in 9(A) and 9(C), we are left with the following:

Type 1 Licenses Alone = $384,000,000 / 5000 = 76,800$ Licenses

Type 2 Licenses Alone = $384,000,000 / 10,000 = 38,400$ Licenses

Type 3 Licenses Alone = $384,000,000 / 43,560 = 8,815$ Licenses

The actual break-down would be some combination of these three figures. For example, if around 50% of licenses are Type 3, 25% are Type 2 and 25% are Type 1, California will require **4,408 Type 3 farms, 9600 Type 2 farms, and 19,200 Type 1 farms.**

These numbers represent the ideal number of licenses that California may require, once the program is completely underway. It may take some time to get to this point, and this is all predicated on a more thorough understanding of actual dispensary sales, and on determining other factors which are unknown at this time, such as those contained in #6, #9A, and #9C.

Even if only 25% of this goal is met in 2018, ramping up additional licenses as the market develops, California would need to issue at least 1100 Type 3 Licenses, 2400 Type 2 Licenses and 4800 Type 1 Licenses, in the first year alone.

No Artificial Limitations (yet): Any artificial limitations placed on the number and types of Cultivation, Dispensary and Manufacturing Licenses, enacted without a clear understanding of the subjects I've raised herein, will essentially undermine the effectiveness of this Program and will play into the hands of the criminal "prohibition" market. All qualified patients should be able to safely access 100% of their cannabis from Licensed Dispensaries, at affordable prices and in amounts that are sufficient to meet their medical needs.

The regulations and licensing requirements already in place under M.C.R.S.A., combined with the sheer volume of cannabis required by California patients, create a sufficient market barrier to prevent the issuance of "too many" cultivation licenses. If anything, the high demands for cannabis alone may very well outpace the legal supplies available in the market, without any artificial restrictions being placed on the types and numbers of cultivation licenses issued by the C.D.F.A.



The number of parcels available locally for cultivation is restricted further, based on Coastal or Inland designations, Local zoning and acreage requirements and Local limitations on the number of businesses per parcel. There is no identifiable need for State Licensing Agencies to place any artificial limitations on anything right now.

C.D.F.A. should consider the subject of exploring Type 3 License restrictions as an opportunity to advise Local Licensing Agencies what the projected state-wide needs might be. Before Local Licensing Agencies choose to artificially limit the number and types of licenses they issue, it may be a good idea for C.D.F.A. to develop statewide production quotas and to suggest a reasonable combination of cultivation licenses, so that local agencies have enough information to properly develop their own licensing standards. C.D.F.A. could then enter into a partnership with Local Licensing Agencies, in order to ensure that enough cultivation licenses are issued in order to accommodate California's needs, while allowing local preferences to determine the capacities and locations of operations.

Due to the enormous plant canopy required to produce all of California's annual medical cannabis supplies, the fewer Type 3 farms that are licensed, then more Type 2 and Type 1 farms will be required. Having a significant number of Type 3 farms will actually reduce the burden of having "too many" smaller farms in any given community, without reducing the State's overall production quotas. C.D.F.A. could develop high and low thresholds for Type 3 farms, and let Local Licensing Agencies work within that range. If you chose to offer a range, I would suggest that Type 3 Licenses be limited to 10% - 50% Total Plant Canopy (TPC) in every local jurisdiction. Or, C.D.F.A. could just issue one state-wide standard for all local jurisdictions to follow. In the example above, I reserved 50% of TPC for Type 3 farms, 25% of TPC for Type 2 farms, and 25% of TPC for Type 1 farms. But whatever numbers you choose, utilizing percentages of total plant canopy is the best way to evaluate the # of licenses available in each category.



No Lighting Restrictions: Likewise, C.D.F.A. should not create any artificial restrictions on the amounts of light that indoor and mixed use facilities may use. The primary reason is that doing so directly and artificially limits the amounts of cannabis that a farm can produce, which leads to an artificial increase in the cost to produce each pound. For your information, the amount of indoor lighting required to produce the equivalent to sunlight is 100 watts per square foot of plant canopy. This means that in order to compete with outdoor farms, indoor and mixed use farms should be legally able to approximate or surpass the amount of light available outside. The second reason not to restrict lighting, is that Licensees will pay for it as a cost of business, and it's their right to use as much electricity as they pay for. Furthermore, many indoor and mixed use farms may ultimately derive all or most of their energy from renewable sources, depending on the development of industry standards, the accessibility of public and private programs to the industry, and Local licensing requirements mandating renewable energy (such as those developed by Humboldt County). For all these reasons, there is no justifiable reason for C.D.F.A. to artificially restrict electrical usage.

I thank you for your time and consideration in this matter.

9/26/2016

Sincerely,

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p.s. I'm also available to assist State Licensing Agencies with estimating the number of dispensaries California may require in each "green" community, based on the patient populations from surrounding "banned" jurisdictions.