

New Mexico Cannabis Demand Modeling, 2022

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Department

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Survey Report Summary and Interpretation

The current cannabis demand and supply study for the regulated cannabis markets of New Mexico leveraged survey data for demand and adaptive demand to supply ratios, and data from the Cannabis Reporting Online Portal for actual supply side data on current plant counts. To estimate demand, we not only surveyed a large population sample of New Mexico residents who use cannabis, but we compared the demand relative to several other states with similar populations and which recently implemented adult use cannabis markets in their respective states. Below are the key findings of this study:

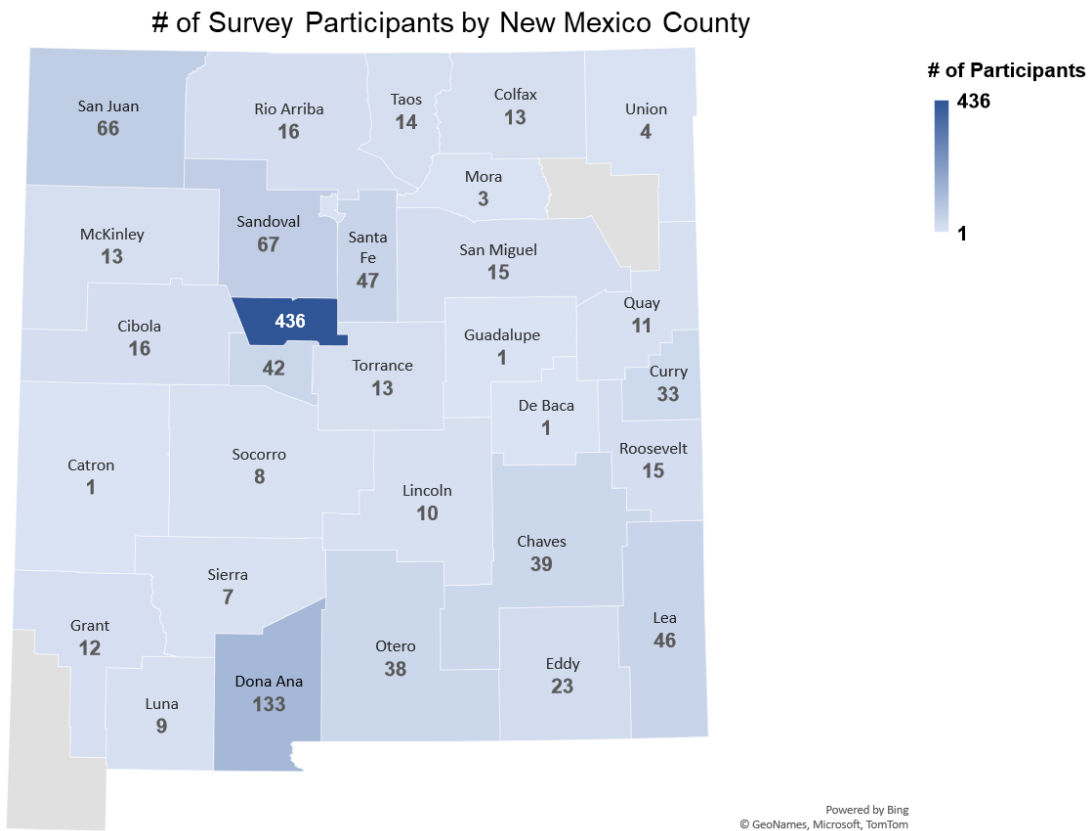
- Total demand for cannabis was based on our demographically and geographically representative survey data of New Mexico was very similar in 2022 as it was in 2021 (i.e., ≈ 160 million grams).
- Demand as assessed by averaging survey data from other similar adult use cannabis states from our Regulatory Determinants of Cannabis Outcomes Survey (RDCOS) matched by a percentage of 90%, which provides strong support for the validity of our demand estimate.
- Although there was only a 10% difference in the demand per person found for New Mexico relative to other states with similar populations and who recently implemented adult use markets, New Mexico's demand was slightly lower than the other states.
- The lack of a notable shift in total demand was mirrored by relatively flat changes in combined adult use and medical sales from April of 2022 (first month of AU) to January of 2023, further strengthening our confidence in our findings.
- When assuming an adaptive 1:2 ratio of demand weight to supply weight, we found an estimated supply of about 1 million plants.
- Supply estimates derived from the survey demand output and the assumption of an adaptive demand to supply ratio (1:2) was approximately 1 million plants of supply, but data from the Cannabis Reporting Online Portal (CROP) suggests an actual supply of 1.5 million plants, which is 50% more than what is likely adaptive as a demand to supply ratio.
- There is reasonable evidence which suggests a potential oversupply of mature cannabis plants will be realized in New Mexico in 2023 if the current track-and-trace plant counts progress.
- Given broad oversupply issues realized in many states and across the U.S. in 2022 and into 2023, it would be prudent to conduct a more nuanced study to identify ideal, New Mexico-specific levels of demand to supply ratios using cleaner monthly track-and-trace data and repeated surveys in relation to other market outcomes (e.g., illicit percentage).¹

Section 1. Research Design

Potential participants for the survey resided in 31 of the New Mexico's 33 counties. A total of 1,150 residents of New Mexico participated in the survey. By oversampling for those indicating cannabis use in the past year, we recruited 1,012 New Mexico residents reported using cannabis at least once in the past month (i.e., 88%) of the sample. Figure 1 below shows the relative geographic distributions of participants by county.

¹ Note that the CROP portal only became available online towards the latter half of 2022, and given the volume and complexity of the data, it is still in an introductory phase of implementation.

Figure 1. Heatmap of Number of Survey Participants by New Mexico County



Notably, the percentage of actual New Mexico residents in each county as a function of the whole state population almost perfectly correlates with the percentages per county achieved by our survey sampling ($r = .99$). This suggests that our recruitment of New Mexico residents is geographically representative of the actual county-level populations in the state, which strengthens our confidence in the generality of our findings detailed in this report.

Section 2. Survey Participant Demographics

2.1 Demographic Information

Table 1. Demographic Distributions

	Survey	New Mexico
Age (Median)	34	38
Race		
American Indian, Native American, or Alaskan Native	8.9%	11.2%
Asian	1.8%	1.9%
Black or African American	4.6%	2.7%
White	62.8%	81.3%

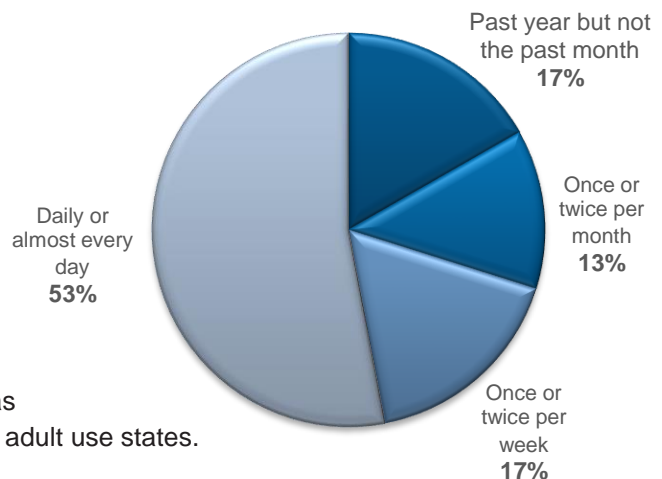
Native Hawaiian or other Pacific Islander	0.3%	0.2%
Other	17%	
Multi-race	4.2%	2.7%
Gender Identity		
Male	33.4%	49.8%
Female	63.7%	50.2%
Transgender female	0.3%	
Transgender male	0.5%	
Non-binary	1.0%	
Not included above	0.3%	
Prefer not to answer	0.8%	
Family Income (Median)		
	\$35,000	\$54,020
High School Degree or Higher		
	91.4%	86.8%

A majority of respondents in this sample were White (62.8%), another race not listed in the survey (17%), or American Indian, Native American, or Alaskan Native (8.9%). These demographics are fairly equivalent to the population of New Mexico; however, this sample was slightly younger and oversampled for those who are Black or African American and multi-race. 63.7% of the sample identified as female and the average age was 34. The median family income was \$43,000, which is lower than the median for New Mexico’s population (\$54,020). 91.4% of individuals in this sample obtain a high school degree or higher.

2.2 Cannabis Use & Prevalence

100% of respondents in this sample indicated using cannabis within the past year and approximately 83% of respondents indicated using cannabis at least on a monthly basis. National population prevalence shows past year cannabis consumption at approximately 46%, suggesting the cannabis users in New Mexico consume cannabis at significantly higher frequencies than individuals in other states. 53% of respondents in this sample report using cannabis daily or almost daily. Importantly, the average age of initiation of cannabis use in this sample was 16 years old. This is slightly younger than national data, which has found 17 years old as the average age of first use for individuals in other adult use states.

Figure 2. Cannabis Use Frequency Among Participants.



Of those who used cannabis within the past year, smoking (75%), ingesting edibles (52%), and vaping cannabis (51%) were the most frequently reported methods of administration in this sample. Those who reported smoking cannabis over the past month indicated using cannabis an average of 13 days, and those who reported ingesting edibles and vaping cannabis used an average of 5 and 6 days over the past month, respectively. The average cannabis potency past-month users indicated consuming over the past month was around 33% THC, which is slightly higher than other states with legal medical and adult use cannabis laws.

Notably, there were significant differences in the frequency of cannabis use days for smoking and for average THC potency when comparing New Mexico's data from a national sample collected in the Regulatory Determinants of Cannabis Outcomes Survey², such that survey respondents in this sample reported more days smoking cannabis flower products and had a higher average THC potency.

Figure 3. Typical THC Potency in Past-Month Cannabis Users.

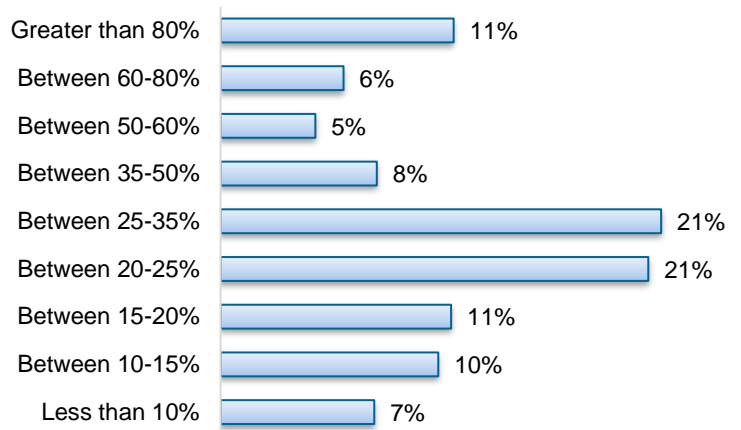


Table 2. New Mexico and National Consumption Patterns

	Smoke (Flower)	Edibles	Vape	Dabbing or Similar	Typical THC Potency
New Mexico	13 days	5 days	7 days	5 days	33%
National Data from Other AU States	11 days	5 days	6 days	4 days	31%

2.3 Cannabis Decision Characteristics

Respondents indicated that price is the most important characteristic impacting their decision to access cannabis, followed by THC or CBD potency. Whether or not cannabis can be delivered ranked as the least important characteristic by respondents.

Rankings from most important to least important:

1. Price
2. THC or CBD Potency
3. Cannabis Strain
4. Convenience (time, distance, or access)
5. Source
6. Safety

² Obtained using national cannabis data from the Regulatory Determinants of Cannabis Outcomes (November 2022).

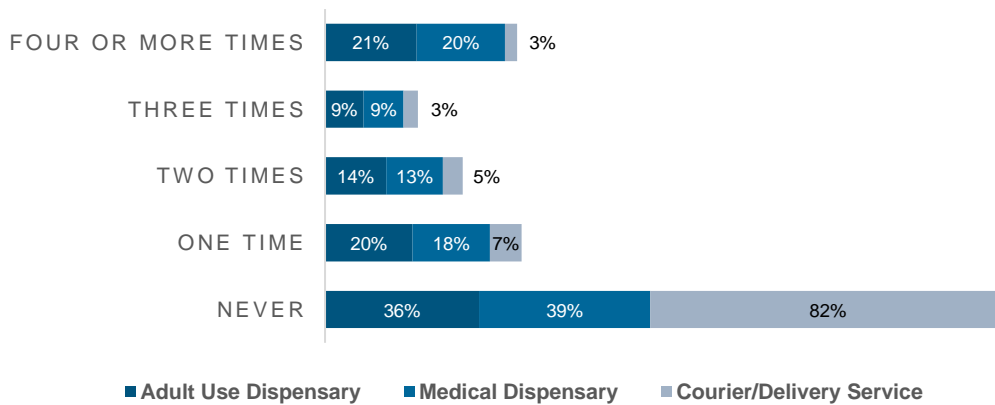
7. Whether it can be delivered

The Regulatory Determinants of Outcomes Survey (RDCOS) from November 2022 found that cannabis consumers residing in states with adult use cannabis programs ranked price and THC or CBD potency as the top two most important characteristics, similar to rankings by respondents in this survey. Interestingly, data from the RDCOS found that cannabis product safety was ranked as the 3rd most important decision factor, compared to its ranking as the 6th most important decision factor by respondents in this survey, indicating that respondents in New Mexico find other characteristics (such as cannabis strain and convenience) more important than individuals in other states with adult use cannabis access.

2.4 Travel to Purchase Cannabis

Respondents indicated that they travel between 5-10 minutes on average to purchase cannabis. Participants reported obtaining cannabis primarily from a medical dispensary/store (60.5%) or adult use dispensary/store (64.4%), compared to a courier (delivery) service (17.9%) within the past month. This low proportion of delivery service usage corresponds with participants’ ranking of cannabis delivery as the least important factor impacting their decision to access cannabis. Figure 4 displays the number of times participants reported visiting each regulated source within the past month.

Figure 4. Number of Times Visiting Each Regulated Source Per Month



Slightly over half (55%) of past-year cannabis users in this sample indicated that they do not travel to buy legal cannabis from states other than New Mexico. However, for those who did indicate that they purchase legal cannabis from other states, 37% reported purchasing cannabis from Colorado, and 16% reported purchasing cannabis from California. Overall, these data indicate that most respondents only purchase cannabis in New Mexico and do not travel to other states to obtain legal cannabis.

2.7 Willingness to Pay

Currently, respondents who use cannabis indicate that they spent an average of \$151 on cannabis over the past month. When prompted with a follow-up question asking, “Imagine you won \$1,000. How much of that \$1,000 would you spend on cannabis during the next month?”, participants indicated that they would spend an average of \$203 on cannabis.

2.8 Illicit vs Regulated Cannabis

Statewide

Participants were asked to report the number of grams of cannabis they obtained within the past month from a variety of regulated (adult-use dispensary, medical dispensary, online dispensary, caregiver, home-grow) and illicit sources (dealer and friends and family). Of those who reported obtaining any amount (>0 grams) of cannabis within the past month, the most frequently reported sources were from an adult use dispensary/store (74.1%), a medical dispensary or caregiver retail store (48.7%), friends and family (56%), and a dealer (34.9%).

On average, participants obtained 17.8 grams of cannabis across all sources within the past month.

Participants indicated that they obtained an average of 4.3 grams from an adult use dispensary store, 3.1 grams from friends and family, 2.7 grams from a medical dispensary or caregiver retail store, and 2.7 grams from a dealer over the past month. As presented in Table 3, these reported values are very similar to those found in national data from other states with adult use cannabis regulations.

There was a 91% correspondence between the per source demand for cannabis in New Mexico relative to other similar states with adult use cannabis.

The primary difference is that respondents in the present sample reported obtaining nearly one gram less of cannabis from a dealer per month compared to individuals from the national sample. This is an optimistic finding suggesting that individuals in New Mexico may choose to obtain more cannabis from regulated sources compared to illicit sources.

Table 3. New Mexico and National Cannabis Sources

	Adult Use Dispensary	Medical Dispensary	Friends and Family	Dealer
New Mexico	4.3g	2.7g	3.1g	2.7g
National Data (AU States)	4g	2.7g	3.3g	3.6g

The amount of illicit cannabis was calculated by summing the total reported number of grams obtained by participants from a dealer, medical dispensary, and caregiver sources from those who did not indicate that they are registered medical cannabis patients, other sources, and friends and family³. As indicated by Table 4, the overall proportion of illicit cannabis obtained among the entire sample was 37%, with 9% from individuals who obtained medical cannabis but were not registered medical cannabis patients, and 28% from individuals reporting obtaining cannabis from friends and family, a dealer, or other sources⁴. A total of 63% of cannabis was reported to be obtained via regulated (legal) sources, including from an adult use dispensary, medical dispensary and caregiver sources from those who indicated being registered medical cannabis patients, online dispensary, and home-grow sources. 24% of all cannabis was reported to have been obtained from adult use dispensaries, and 16% was from medical dispensaries and caregiver sources from those who are registered medical patients. Although it was found separately that most (60.7%) respondents indicated that it is easy or very easy to access illegal cannabis, given the data above, it appears that most respondents may *choose* to obtain regulated cannabis, which is a promising finding. Moreover, given that 24% of all cannabis came from adult use dispensaries, it seems likely that the introduction of adult use cannabis in 2022 did contribute to reducing illicit cannabis purchasing to a relevant extent.

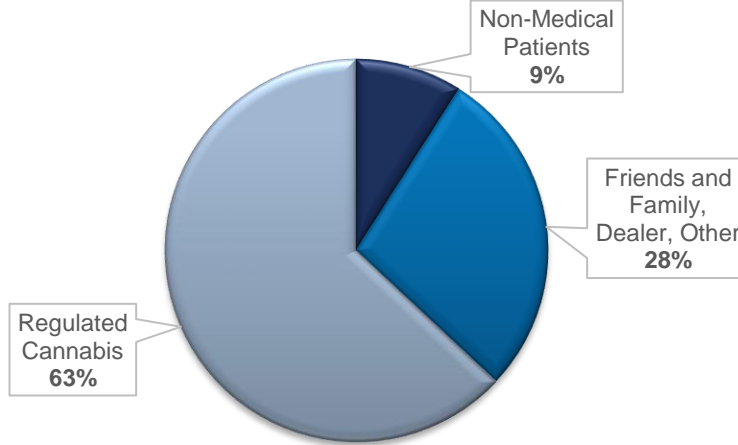
Table 4. Percent Regulated and Illicit Cannabis of Total Reported Grams

Grams	
Regulated Sources	
Adult Use Dispensary	24.2%
Medical Dispensary & Caregiver	15.9%
Online Dispensary (courier service)	5.8%
Home-grow	8.2%
Friends and Family	8.7%
Illicit Sources	
Medical Dispensary and Caregiver (not registered medical patient)	8.8%
Dealer	15%
Friends and Family	8.7%
Other	4.5%

³ Reported grams obtained from friends and family was divided in half (50% regulated and 50% illicit), under the assumption that some, but not all, cannabis obtained via this source is not regulated or exceeds permissible gifting quantities.

⁴ Although response options for medical dispensaries and adult use stores were presented independently to identify separate percentages from each, many adult use stores in New Mexico are dual licensed for adult use and medical use, thus relying on participant self-reports of whether they used their medical card or not to purchase cannabis in adult use stores. However, when taking medical sales divided by adult use sales for the second half of 2022, we arrive at a proportion of 65.7%, which is very close to our estimated regulated proportion of medical-to-adult use of 62%. This validity check provides increased confidence in the quality of source-specific reports from medical and adult use stores.

Figure 5. Proportion of Cannabis Obtained from Illicit Versus Regulated Sources



Per County

When examining illicit versus regulated cannabis by specific county in New Mexico, it was found that Bernalillo County, the most populous county in New Mexico and in this sample, had a 33.7% illicit cannabis proportion. Dona Ana County, the next most populous county had a 31.3% illicit cannabis proportion. The proportions are slightly lower than the overall illicit cannabis proportion across the sample. Since fewer participants were obtained from the less populous counties in New Mexico, a combined aggregate was created for each county in which less than 20 participants were obtained to examine illicit cannabis. The proportion for all less populous (<20 participants) New Mexico counties was 35% illicit cannabis. Interestingly, counties with some of the largest illicit cannabis proportions (Chaves, Lea, Eddy, and Otero counties) either border or are near the border of Texas, which has not legalized adult use cannabis at the time of the creation of this report. This may potentially contribute to the slightly higher proportions of illicit cannabis found in these counties.

Table 5. Proportion of Illicit Cannabis by County

County	N	Illicit Cannabis
Bernalillo	436	33.7%
Dona Ana	133	31.3%
Sandoval	67	26.6%
San Juan	66	36.0%
Santa Fe	47	34.7%
Lea	46	38.5%
Valencia	42	38.1%
Chaves	39	42.4%
Otero	38	37.0%
Curry	33	24.0%
Eddy	23	40.7%

Section 3. Demand and Supply

3.1 Total Demand

Total yearly cannabis demand in New Mexico is estimated to be 161 million grams of cannabis across all sources of cannabis. Importantly, this demand includes all cannabis sources (i.e., adult use dispensary, medical dispensary, home-grow, friends and family, illicit sources).

- This calculation was acquired by taking the average number of grams obtained per month per individual who reported using cannabis in the past year in New Mexico (17.8 g per month).
- 77.6% of individuals in New Mexico are 18+ years of age⁵ ⁶. We then took the 1.64 million New Mexico residents who are 18 years old or older, and multiplied by our empirically derived percentage of the population who are estimated to use cannabis in the past year (46%)⁷, which equates to 756 thousand residents who use cannabis at least once within the past year.
- We then multiply 756 thousand residents by 17.8 grams by 12 months to arrive at 161 million total grams of estimated cannabis demand across all sources.

3.2 Total Supply (2021 and 2022)

- When converting from cannabis grams to pounds, this results in a figure of approximately 356 thousand pounds of cannabis. To calculate the number of cannabis plants, we multiply the number of pounds of cannabis by 1.49 (an empirically derived estimate of the pounds to plant equivalency⁸), equaling approximately 530 thousand cannabis plants. It is also important to consider the amount of plant waste that may be discarded during the harvesting cycle. To do this, we multiply the total number of cannabis plants by 2, operating under a generous theoretical assumption that the equivalent weight of one out of every two plants will need to be discarded during harvesting, drying or curing, or are required for production of other products, equaling approximately 1 million cannabis plants.
- To further calculate the number of cannabis plants per cycle, we divide the total number of plants by four (the approximate number of harvesting cycles per year) to arrive at a figure of 133 thousand plants per cycle, or 265 thousand plants per cycle when accounting for theoretical discarded plant material. We further divide this number by 713 (an approximate number of cannabis cultivators in the state of New Mexico), to arrive at 186 plants per cultivator per season or 372 plants when accounting for theoretical discarded plant materials. Importantly, these data are estimations and should be interpreted

Table 6. Supply Totals

Total Grams of Cannabis	161,000,000
Pounds of Cannabis	356,000
Total Cannabis Plants	530,000

⁵ <https://www.census.gov/quickfacts/NM>

⁶ To stay consistent with other publications on the topic, we utilize the 18+ population as opposed to the 21+ population when deciphering demand. This allows us to account for medical cannabis users under the age of 21 and provide predictive estimates of future market transitions for those coming of age to a regulated system. The quantity of cannabis consumed from respondents aged 18-20 without medical cannabis certifications are considered illicit and have been accounted for initial illicit market demand projections within this report.

⁷ Taken using national cannabis data from the Regulatory Determinants of Cannabis Outcomes (August 2022) on past year prevalence to improve accuracy of estimate.

⁸ <https://www.scribd.com/document/433582824/A-Snapshot-of-Demand-for-Adult-use-Cannabis-in-Illinois#>

with some caution due to a lack of direct supply data.

Table 7 displays comparisons between data from the 2021 demand report for New Mexico to the current 2022 demand report. Between 2021 to 2022, total estimated demand for grams, pounds, and plants of cannabis has remained overall stable between the timepoints, with a slight decline. It is important to note that the calculations for the 2021 timepoint have been updated in this report to reflect current improvements in calculations methodologies, thus improving the empirical validity of the measure.

- **2021 Traditional Supply Calculation**
 - 1.49 pound to plant equivalency converts 372,000 pounds to 555,000 plants.
 - Total plants are multiplied by 2 to account for discarded, low-quality, and other cannabis supply that does not make it to market to arrive at 1,110,000 plants.
 - We divide by 4 cultivation cycles per year⁹ to arrive at 278,000 plants per cycle.
 - We divide by the 33 cultivators which were present at the time of the 2021 study, which equates to an estimate of **8,415 plants per cultivator per harvest cycle**.
- **2022 Traditional Supply Calculation**
 - 1.49 pound to plant equivalency converts 356,000 pounds to 530,000 plants.
 - Total plants are multiplied by 2 to account for discarded, low-quality, and other cannabis supply that does not make it to market to arrive at 1,060,000 plants.
 - We divide by 4 cultivation cycles per year to arrive at 265,000 plants per cycle.
 - We divide by the number of cultivators (713) which provides the estimate of **372 plants per cultivator per harvest cycle**.
 - If we assume 378 cultivators, as is depicted on the CROP website, we arrive at an estimate of 669 **plants per cultivator per harvest cycle**.

Table 7. Cannabis Supply and Demand Calculation Comparisons 2021 vs 2022

Category	2021	2022
Total Grams	168,859,812	161,265,908
Total Pounds	372,759	355,995
Total Plants in a Year	555,410	530,433
Total Plants in a Year (Accounting for Discarded Plant Material)	1,110,821	1,060,866
Total Plants per Harvest Cycle	138,853	132,608
Total Plants per Harvest Cycle (Accounting for Discarded Plant Material)	277,705	265,217

⁹ The number of harvest cycles can range anywhere between 1 to 6 annually dependent on the type of cultivation facility (indoor vs. outdoor) and the environment and conditions of which the cannabis is cultivated.

Total plants per Harvest Cycle per Cultivator	4,208	186
Total Plants per Harvest Cycle per Cultivator (Accounting for Discarded Plant Material)	8,415	372

3.3 Validity Checks

Despite the empirical nature of the survey approach used here to assess total New Mexico cannabis demand, it is important to cross reference the data with another data source, when possible, to increase our confidence in the findings. Specifically, the above findings suggested that total demand and total supply for cannabis were approximately the same when comparing 2021 survey data to 2022 survey data. Therefore, to test whether there was evidence from the new adult use market and existing medical market data¹⁰, which might suggest that demand has functionally changed, we compared adult use and medical sales during the first month of adult use sales (April 2022) to the most recent month where track and trace data is available (January of 2023).

Notably, based on the data from New Mexico’s Cannabis Reporting Online Portal (CROP), we found that the adult use market increased about 16% from April of 2022 to January of 2023, whereas the medical market decreased approximately 21%. Although this might seem to suggest a net decrease, because about 66% of medical and adult use sales in that time frame were accounted for by adult use sales, that suggests that very little change in net demand for cannabis occurred when combining the adult use and medical markets in that time frame.

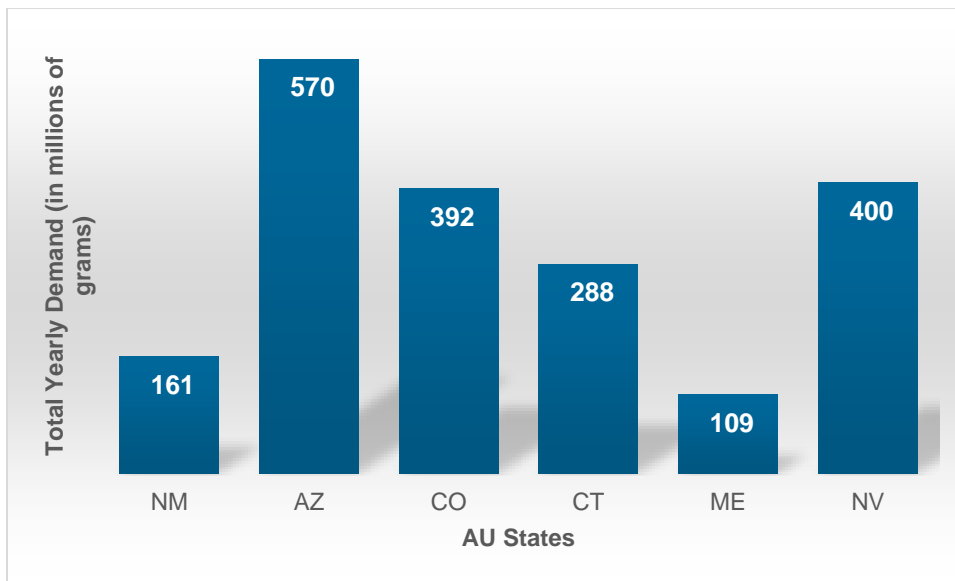
These findings strongly corroborate our survey demand.

National Data

- Data from the RDCOS was utilized to compare cannabis demand estimations from New Mexico to other states with adult cannabis use regulations. A total of 21 states with adult use laws were used to perform these demand calculations.
- Direct comparisons were performed with individual states with adult use cannabis regulations that are similar in population size to New Mexico or had similar timing of legalization of adult use cannabis, as presented in Figure 6 on the following page.

¹⁰ [NMRLD Cannabis Dispensaries in New Mexico \(amazonaws.com\)](https://amazonaws.com)

Figure 6. Total Estimated Cannabis Demand for Select Adult Use States



As shown in Table 8 below, when we account for the population size of each state, the demand estimates in total annual grams for other states and New Mexico on a per resident basis is quite similar. Specifically, we calculated a 90% correspondence between demand per person in New Mexico and those from five other states with similar population sizes and who recently implemented adult use markets in their respective states. Moreover, if we simply take the average total annual grams from the other states per person from other states (i.e., 85), we can see that is very similar to the same measure for New Mexico (i.e., 76).

Table 8. Cannabis Demand Per Person in NM Compared to Other Adult Use States.

State	Cannabis Demand in Mills of Grams	Project 2022 Population	Total Grams/Population
NM	161,000,000	2,113,344	76
AZ	570,000,000	7,359,197	78
CO	392,000,000	5,839,926	67
CT	288,000,000	3,626,205	79
ME	109,000,000	1,385,340	79
NV	400,000,000	3,177,772	126

Section 5. Actual Track-and-Trace Supply Estimates

In adult use cannabis markets, oversupply has become increasingly unresponsive to relatively flat levels of demand¹¹. For example, in California at the present date, structural oversupply has led to decreased prices for cannabis as sharp as 60% since June of 2022.¹² However, because our survey does not directly assess supply, it inherently assumes a close correspondence between demand and supply such that while there will typically be more supply than demand, the ratio of demand to supply will remain roughly similar across time.

However, since our 2021 survey, New Mexico's Regulation and Licensing Department has provided track-and-trace data on current plant counts for their cultivators for each month. Therefore, although we have provided the demand-derived estimates of supply (see Section 4) to demonstrate relative changes in demand and estimated supply using the approaches we used in 2021, actual track-and-trace plant counts provide two primary advantages. First, they are more likely to be accurate than our demand-derived estimates of supply. Second, they provide the opportunity to compare what other states have demonstrated is generally an adaptive ratio of demand to supply to what is actually occurring in New Mexico.

Based on the track-and-trace supply data provided by CROP, there were 376,417 mature plants in January of 2023.¹³ If we assume there is a roughly similar plant count across four harvests per year, we arrive at an annual total of 1.51 million harvested plants per year in New Mexico. If we use the same equivalencies previously used to calculate plants to pounds and pounds to grams, we arrive at an annual supply of 459 million grams of cannabis, which is noticeably higher than our demand estimate of 161 million grams. Moreover, our adaptive supply level (i.e., twice that of demand) was calculated to be about 1 million plants per year, which is noticeably less than the 1.5 million plants currently on track to be supplied in 2023. It is important to note that our estimate of 1 million plants as the adaptive demand to supply ratio already accounts for a doubling of supply to account for discarded or otherwise unused cannabis. Our survey-based estimate of supply also assessed other cannabis use sources besides adult use and medical.

Together, these congruent findings suggest that there will likely be an oversupply of cannabis in the combined medical and adult use cannabis in New Mexico if similar supply patterns continue.

Additional context can be gleaned when examining the CROP cultivation data on a per-cultivator basis. Specifically, the top 10 highest producing cultivators in January of 2023, all of which had at least 10,000 mature plants at the time, accounted for half of the estimated supply needed in New Mexico for the entire year (i.e., 157 million grams). Given their differentially greater relative contribution to the total supply than other cultivators, it seems plausible that such cultivators may disproportionately contribute to the oversupply.

¹¹ [Interviews with Cannabis Licensees in Washington State: A Report for the Washington State Liquor & Cannabis Board by Mark Kleiman, Sam Hampsher, Steven Davenport, Clarissa Manning, Lowry Heussler :: SSRN](#)

¹² [Falling prices in California marijuana wholesale market alarms some growers; others unfazed \(mjbizdaily.com\)](#)

¹³ [NMRLD Cannabis Dispensaries in New Mexico \(amazonaws.com\)](#)

Section 6. Policy and Program Implications and Potential Recommendations

Overview

The data from this study strongly suggest a little to no net changes in cannabis demand at the state level in New Mexico. However, there does appear to be a net surplus of 50% more supply relative to demand than needed. Although not a perfect heuristic, when multiple other markets achieved approximately 1:2 demand to supply ratios (e.g., Colorado, Maine), robust adult use market presence and either very low or quickly diminishing illicit markets were observed.^{14,15,16} Moreover, 50% surplus, even after doubling the initial estimate to account for discarded cannabis is a relatively large percentage given that the adult use market in New Mexico is less than a year old. When an oversupply has been observed, such as in Washington and Oregon in the first wave of adult use implementation, or in Michigan more recently, it was not until the second or third year of adult use implementation when oversupply took such an effect.

The CROP website also suggests that a 16% drop in the average sale per transaction for the adult use market when comparing April of 2022 to January of 2023.¹⁷ Although we do not currently know whether consumers are buying less cannabis (i.e., grams, or mgTHC), or that prices per gram and per product are dropping, the former would be particularly consistent with trends seen in many other states since the summer of 2022^{18,19}. Regardless, either of these trends in conjunction with the likely surplus of supply is consistent with what has been observed in other oversupplied markets.

Although the observed supply surplus was based on January of 2023 data, which suggests that there is still theoretically time in 2023 to alter supply trends through various policy levers, the current findings suggest several additional research steps should be taken to better understand and potentially address the observed oversupply. Potential steps include:

- Evaluate time-based supply trends within and between different size cultivators (i.e., across different canopy levels and micro-cultivators).
- Reissue the survey to derive more granular time-based trend of demand to compare to track-and-trace supply data.
- Track discrepancies in amount of cannabis sold and cultivated for vertically integrated companies across time to identify potential surplus issues.
- Compare track-and-trace supply data, survey-derived demand data, and price per transaction or price per gram data across concurrent points in time to establish

¹⁴ MPG Consulting & Leeds School of Business, University of Colorado Boulder. (2020). *2020 Regulated marijuana market update*. Colorado Department of Revenue, Marijuana Enforcement Division. <https://sbq.colorado.gov/sites/sbq/files/2020-Regulated-Marijuana-Market-Update-Final.pdf>

¹⁵ Oregon Liquor Control Commission. (2021, February 1). *2021 Recreational marijuana supply and demand legislative report*. https://www.oregon.gov/olcc/Docs/Legislative_docs/2021-Supply-and-Demand-Report.pdf

¹⁶ Vermont Cannabis Control Board. (2021, October 15). *Report to the House Committee on Ways and Means, the Senate Committee on Finance, and the House and Senate Committees on Government Operations as per Sections 4a, 11, & 13 of Act 62 (2021)*. https://ccb.vermont.gov/sites/ccb/files/2021-11/Vermont_CCB_Report_Oct_15_2021-1.pdf

¹⁷ [NMRLD Cannabis Dispensaries in New Mexico \(amazonaws.com\)](https://www.amazonaws.com)

¹⁸ [Falling marijuana prices are hurting California farms \(sfgate.com\)](https://www.sfgate.com)

¹⁹ [Five charts that show Michigan's cannabis price crash – with worse to come - Grown In](https://www.grownin.com)

potentially adaptive demand to supply ratios for New Mexico.

The Baggage Claim Problem

What is unclear is whether cultivators are aware of the extent to which together they are providing an oversupply given that there are at least 378 cultivators, and additional micro-cultivators. Basic microeconomic theory suggests that there is no such thing as true supply and demand in that there are always biases and inefficiencies on one or both sides. Although there are many factors underlying supply and demand dynamics, here the problem is in part one of social dynamics wherein cultivators take steps in an attempt to advance their own positioning in the market, but by doing so, end up inducing or indirectly incentivizing others take similar steps. This can be analogous to picking up luggage at baggage claim at an airport, one can often observe passengers systematically inching forward closer to the rotating baggage carousel. However, once a few folks on a given end of the baggage claim move forward, those near those individuals need to do so as well to be able to also see the luggage going around the carousel. Then, those next to those second individuals must do the same, until there is a chain reaction, and everyone has moved up enough to prompt the first individual or individuals to do so again. The New Mexico adult use cannabis market may function similarly, at least for those cultivators who cultivate the largest yields. In an effort to increase competitive prices, which New Mexico cannabis consumers noted was their number one purchase factor in the current demand survey, supply is increased incrementally more than competitors, thus prompting the cycle of adding more supply to stay competitive.

Section 7. Cannabis Cultivator Data

Mature Plant Count

Data for the following section was obtained from the New Mexico Regulation and Licensing Department's Cannabis Reporting Online Portal (CROP)²⁰. It is important to note that this data may not be wholly reflective of the entire market because it is based on self-report data and therefore vulnerable to inaccurate reporting and data entry errors. Despite this, these data provide important insights to aid in our understanding of the market in general and are useful at determining market trends.

According to the CROP website, there are 393 cannabis plant cultivators in the state of New Mexico at the time of this report's creation. We split the total number of cultivators into groups based on their February 2023 mature plant count, from highest to lowest plant count totals, for a total of 8 groups. Plant count totals are reported for August 2022, September 2022, October 2022, January 2023, and February 2023. Across each month, the average mature plant count total for the top 20 cultivators is 8,338 cannabis plants. There is a sharp decrease in mature plant count totals for the remaining cultivators, with the next group (cultivators 21-50) cultivating 2,844 plants, 912 plants for cultivators 51-100, and 531 plants for cultivators 101-150, with a slow decline in plant counts for the remaining cultivators. These data trends are displayed in Figure 7. Table 9 further breaks down the total mature cannabis plant count per month by cultivator grouping.

²⁰ <https://qimw5q0w5j.execute-api.us-west-2.amazonaws.com/prod/plants.html>

Figure 7. Average Number of Mature Cannabis Plants per Month by Cultivator Ranking.

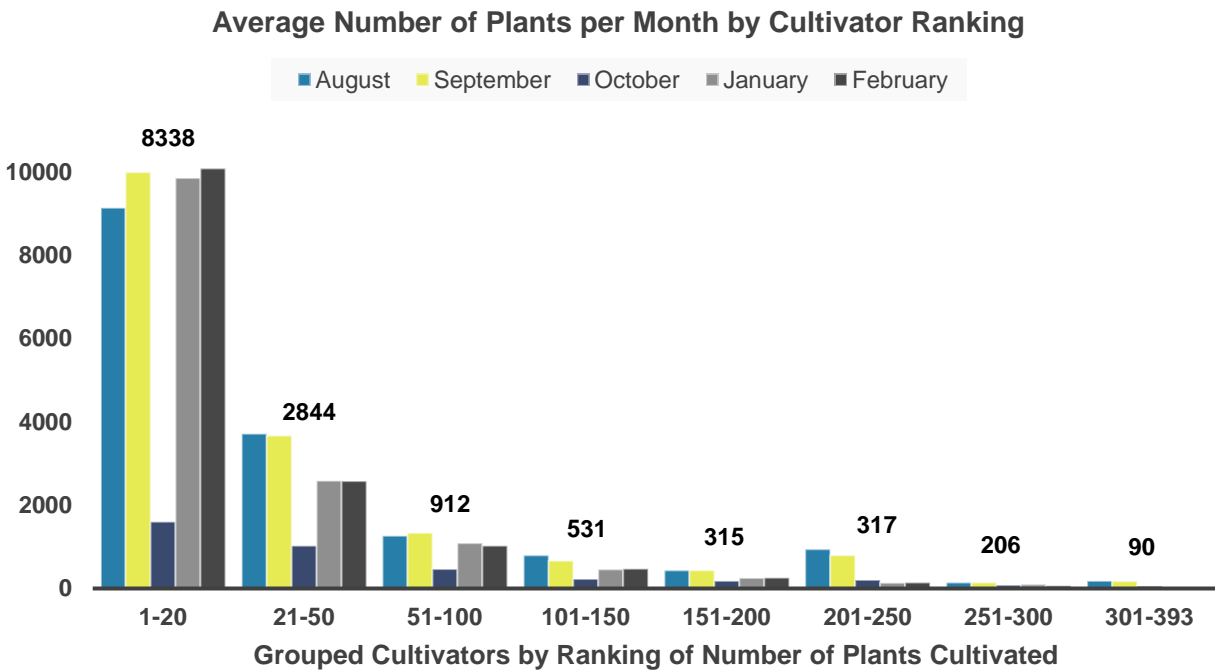


Table 9. Total Number of Mature Cannabis Plants per Month Grouped by Cultivator Ranking.

Cultivator Ranking	August 2022	September 2022	October 2022	January 2023	February 2023
1-20	9142	9998	1602	9855	10088
21-50	3713	3669	1026	2585	2575
51-100	1262	1333	469	1086	1030
101-150	798	664	229	455	470
151-200	438	432	183	248	261
201-250	944	793	207	137	143
251-300	144	146	82	94	67
301-393	181	172	58	26	21
TOTAL	16,622	17,207	3,855	14,486	14,655

Table 10 presents the proportion of mature cannabis plants cultivated by each cultivator group per month. The top 20 cultivators cultivated at least 50% of all cannabis plants per month in the state of New Mexico, the only exception being in the month of October. Additionally, the proportion of cannabis plants cultivated by the top 20 cultivators increased each month, aside from October. In February 2023, the top 20 cultivators were responsible for nearly 70% of the total number of mature cannabis plants in New Mexico. Despite the consistent and predominant contribution of the top 20 cultivators to the total cannabis plant count in New Mexico, the remaining cultivators reported fairly consistent proportions of mature cannabis plants across each month, with slight decreases in plant counts for the lower rankings of cannabis cultivators.

Table 10. Proportion of Total Mature Cannabis Plants per Month Grouped by Cultivator Ranking.

Cultivator Ranking	August 2022	September 2022	October 2022	January 2023	February 2023
1-20	55%	58%	42%	68%	69%
21-50	22%	21%	27%	18%	18%
51-100	8%	8%	12%	7%	7%
101-150	5%	4%	6%	3%	3%
151-200	3%	2%	5%	2%	2%
201-250	6%	5%	5%	0.9%	1%
251-300	0.9%	0.9%	2%	0.6%	0.5%
301-393	1%	1%	1%	0.2%	0.1%

As evidenced by these data, the top 20 cultivators tend to dominate the production of the total supply of cannabis in New Mexico. This is particularly relevant as 2023 trends indicate steady increases in the proportion of cannabis plants being produced by the top 20 cultivators. As this proportion continues to increase, larger decrements will be found at the smallest level of cultivators.

It may be critical to address the disparities in cannabis plant cultivation between the top 20 cultivators and the remainder of cultivators in New Mexico to create a more balanced system because these top 20 cultivators represent a disproportionate amount of the cannabis supplied in the state.

Fortunately, however, it appears that there are fewer new cultivators entering the market each month, with only 21 new cultivators in February 2023, reducing the potential level of supply in New Mexico, as shown in Table 11.

Table 11. Number of New Cultivators by their First Month Reporting Cannabis Plant Counts.

First Month	Number of New Cultivators
August 2022	248
September 2022	34
October 2022	5
January 2023	85
February 2023	21

Interestingly, the CROP data demonstrates significant declines and gaps in cannabis plant count data for October 2022 compared to other months. For example, in Table 9 we observe an 80% reduction in cannabis plant totals for the top 20 cultivators from September to October and between

January to October. The plant count totals across cultivators are generally stable across months aside from October. As previously mentioned, this is self-reported data and vulnerable to errors in reporting. These fluctuations in particular are suggestive of inaccurate reporting from cultivators and may necessitate stricter guidelines for reporting in the future.

The monthly mature plant count was further separated into groups based on cultivator type to account for those with a Microbusiness License (cultivators growing less than 200 cannabis plants). It is important to note that it is not possible to concretely determine which cultivators are licensed as a microbusiness (micro-cultivators) based on the data provided on the CROP website. For our purposes, we classified micro-cultivators as those who did not report cultivating more than 200 cannabis plants during any month. Any cultivator who reported more than 200 cannabis plants during any month was not classified as a micro-cultivator. Similar to trends from other smaller cultivators, we observe a consistent decrease in number of mature cannabis plants from August 2022 through February 2023 in micro-cultivators.

Table 12. Total Number of Mature Cannabis Plants per Month Grouped by Cultivator Ranking and Micro-Cultivators.

Distributions	August 2022	September 2022	October 2022	January 2023	February 2023
1-20	9142	9998	1602	9855	10088
21-50	3713	3669	1026	2585	2575
51-100	1262	1333	469	1086	1030
101-150	798	664	229	455	470
151-227	815	731	216	200	197
Micro-Cultivators	93	90	68	66	63

Section 8. Monthly Cannabis Sales and Price Per Gram

Data for the monthly total sales and average sale per transaction for medical and adult use cannabis for the months of August 2022 through February 2023 are presented in Table 13, which was obtained from the CROP website.²¹ Based on these data, cannabis consumers in New Mexico spend an average of \$43.82 on adult cannabis and \$50.85 on medical cannabis per transaction.

²¹ <https://qimw5q0w5j.execute-api.us-west-2.amazonaws.com/prod/sales.html>

Table 13. Average Monthly Sales and Amount Spent Per Transaction from CROP Website.

	August 2022	September 2022	October 2022	November 2022	December 2022	January 2023	February 2023
Average Sale Per Transaction							
Adult Use	\$43.88	\$43.44	\$43.26	\$44.02	\$45.33	\$42.63	\$44.22
Medical Use	\$49.96	\$49.79	\$49.59	\$50.94	\$52.58	\$49.83	\$53.24
Monthly Total Sales							
Adult Use	\$24,318,386	\$24,337,389	\$25,048,422	\$24,633,558	\$28,096,380	\$26,503,867	\$27,713,580
Medical Use	\$16,517,466	\$15,480,369	\$14,708,400	\$14,064,484	\$15,145,758	\$13,761,251	\$13,963,296

In our data, participants indicated spending an average of \$151 on cannabis in the past month. Of the cannabis that participants indicated obtaining over the past month, 24% was obtained from an adult use dispensary and 16% was from a medical dispensary from registered medical patients. This equals approximately \$36 per month for adult use cannabis and approximately \$24 per month for medical cannabis. These figures are lower than the per transaction retail sales data found on the CROP website; therefore, additional research is needed to investigate these discrepancies. The average number of grams obtained per month from adult use dispensaries and medical dispensaries (shown in Table 3) was divided by the respective amount of money spent per month per source to obtain an average price per gram estimate. Using this calculation, we estimate that the average price per gram in New Mexico for adult use cannabis is \$8.43 and \$8.88 for medical cannabis.

Table 14. Estimated Price Per Gram of Adult Use and Medical Cannabis.

	Adult Use	Medical
Price Per Gram	\$8.43	\$8.88