

# New Mexico Legalization & Cultivation Capacity Analysis

June 25, 2021

PREPARED FOR



PREPARED BY

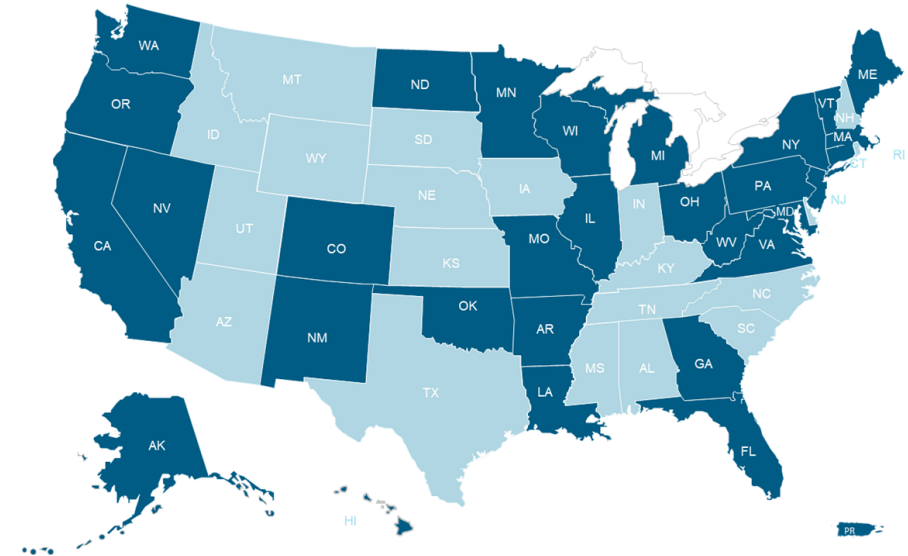


# ABOUT MPG CONSULTING

MPG Consulting has conducted corporate advisory and public policy work in 27 states/territories and multiple global markets. MPG's experience and advice is relied upon by some of the top regulatory bodies in the legal cannabis industry. Some highlights include:

- Sole independent regulatory advisor for the state of **Colorado's Marijuana Enforcement Division (MED)**. A position held since 2014.
- Comprehensive legalization work for the **Commonwealth of Virginia**.
- Market sizing and licensing analyst for **Health Canada** on a national and provincial level.
- Regulatory and tax strategy for **Los Angeles County**.
- Market and policy analysis for **COFEPRIS**, Mexico's FDA.
- Market and policy analysis for **Native American Tribes** in four states.

## MPG DOMESTIC CONSULTING EXPERIENCE



### SAMPLE CLIENTS:



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# EXECUTIVE SUMMARY

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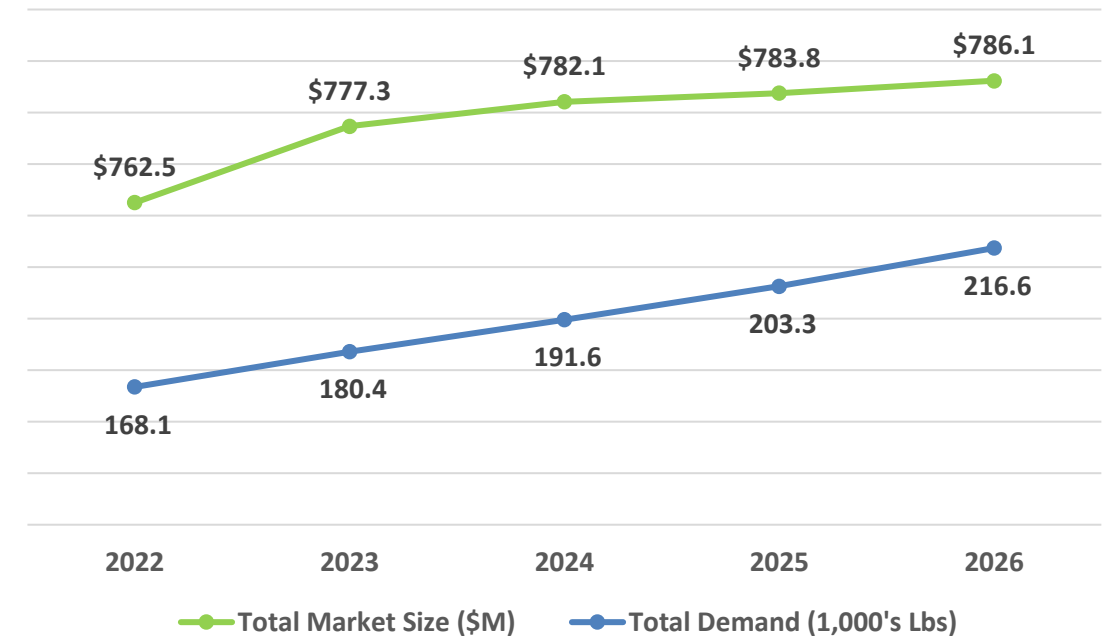
# EXECUTIVE SUMMARY

MPG Consulting (MPG) was retained by Ultra Health LLC to estimate current and projected demand and market size for cannabis products in New Mexico; to quantify cultivation parameters required to support a new regulated cannabis market; and to provide useful data and benchmarks from more mature markets to inform the rulemaking proceedings. The following is a summary of key findings:

**Market size and demand.** Total cannabis market size in New Mexico supported by residents, tourists and expected cross-border activity is estimated to be \$762.5 million or 168,000 pounds, of flower equivalent. This includes total current cannabis demand for adults 21 and older, derived from the National Survey on Drug Use and Health (NSDUH), regardless of supply channel. Market size and demand is projected to grow to about \$786 million and 217,000 pounds in 2026 assuming prevailing trends.

**Market capture and absorption.** Two key objectives of any cannabis legalization program are to absorb the illicit market for cannabis; and to mitigate the adverse effects of the War on Drugs. Speed of market capture hinges on the regulated market offering a more affordable, convenient, and safer product. We expect the regulated market absorption to reach 100 percent in five years, based on experience in other states. New Mexico is expected to capture a \$557 million market by 2022 and a \$782 million market by 2026. All tourist and cross-border sales are projected to be fully captured as these consumer segments rarely shop the illicit market.

**NEW MEXICO TOTAL CANNABIS MARKET SIZE PROJECTIONS  
COMBINED REGULATED AND ILLICIT MARKETS**



Source: MPG Analysis.

# EXECUTIVE SUMMARY

**Cultivation requirements.** New Mexico would require about 155,000 plant allocations by 2022 and about 199,000 plant allocations by 2026, based on 2.7 growing cycles per year and a 0.4 pound yield per plant. This equates to about 67,000 mature plant allocations in 2022 and 86,000 mature plant allocations in 2026. Mature plant estimates are based on New Mexico’s statutory definition of “mature plant” and 6.2 flowering cycles per year. See p. 25-33 for full derivation and sources.

**State production control benchmarking.** Several states with regulated adult use cannabis markets have imposed production control systems using canopy square footage and plant count allocations. On average, each producer licensee across the surveyed states has an estimated 8,478 plant count allocation, with a range of 3,399 to 25,667 plants, based on our canopy-to-plants conversions (excluding New Mexico). The largest average producer license tier in each state allows for up to 31,815 plants, with a range of 4,610 to 161,345 plants.

**Recommended tiers.** Based on our analysis of New Mexico demand and cultivation requirements; and from benchmarking other state systems across the US, MPG recommends a 4-tiered system with lowest tier of 200-2,500 plant allocations (0-1,000 mature plants) and a top tier of 14,000-23,000 plant allocations (6,000-10,000 mature plants). See pages 45-46 for more information.

## KEY FINDINGS

RESULTS	MATURE MARKET (2026)
Total Market Size (\$M)	\$786
Demand ('000 lbs.)	217
Plant Allocations Required ('000, with buffer)	299
Mature Plant Allocations Required ('000, with buffer)	129
Recommended Max Tier per Producer (mature plants)	10,000

*Source: MPG Analysis.*

**Production buffers.** Our demand analysis estimates about 86,000 mature plant allocations to meet annual demand. While this may be a ‘sufficient’ allocation to meet demand in New Mexico, it lacks buffer or contingency space to account for loss factors and production risks, such as pests, disease, operator error, etc. This system would require each producer to be perfect. In Colorado, producers generally have 50 percent more plants allocated than actually put in use, and New Mexico could adopt a similar posture. In most agricultural or horticultural industries, market and capital factors limit the maximum amount grown by each producer, and not regulatory limits.

# BACKGROUND: REGULATED CANNABIS IN NEW MEXICO

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# BACKGROUND: MEDICAL CANNABIS IN NEW MEXICO

## Senate Bill 523 - The Lynn and Erin Compassionate Use Act

- In April 2007 Governor Richardson signed Senate Bill 523 into law, becoming the 12<sup>th</sup> state to allow registered patients to use cannabis with a physician's recommendation for alleviating symptoms caused by debilitating medical conditions and their medical treatments, including HIV/AIDS, cancer, glaucoma, and multiple sclerosis and epilepsy. Under the law, all qualified patients must be under a doctor's care and supervision.
- In order to provide medical cannabis to patients, the Act designated the New Mexico Dept. of Health as the regulatory agency for the new program and granted them the authority to determine qualifications for licensees to produce, possess, distribute and dispense cannabis.
- It also created a panel of eight expert physicians and other health care workers to supervise the program.

## Department of Health Rules and Regulations

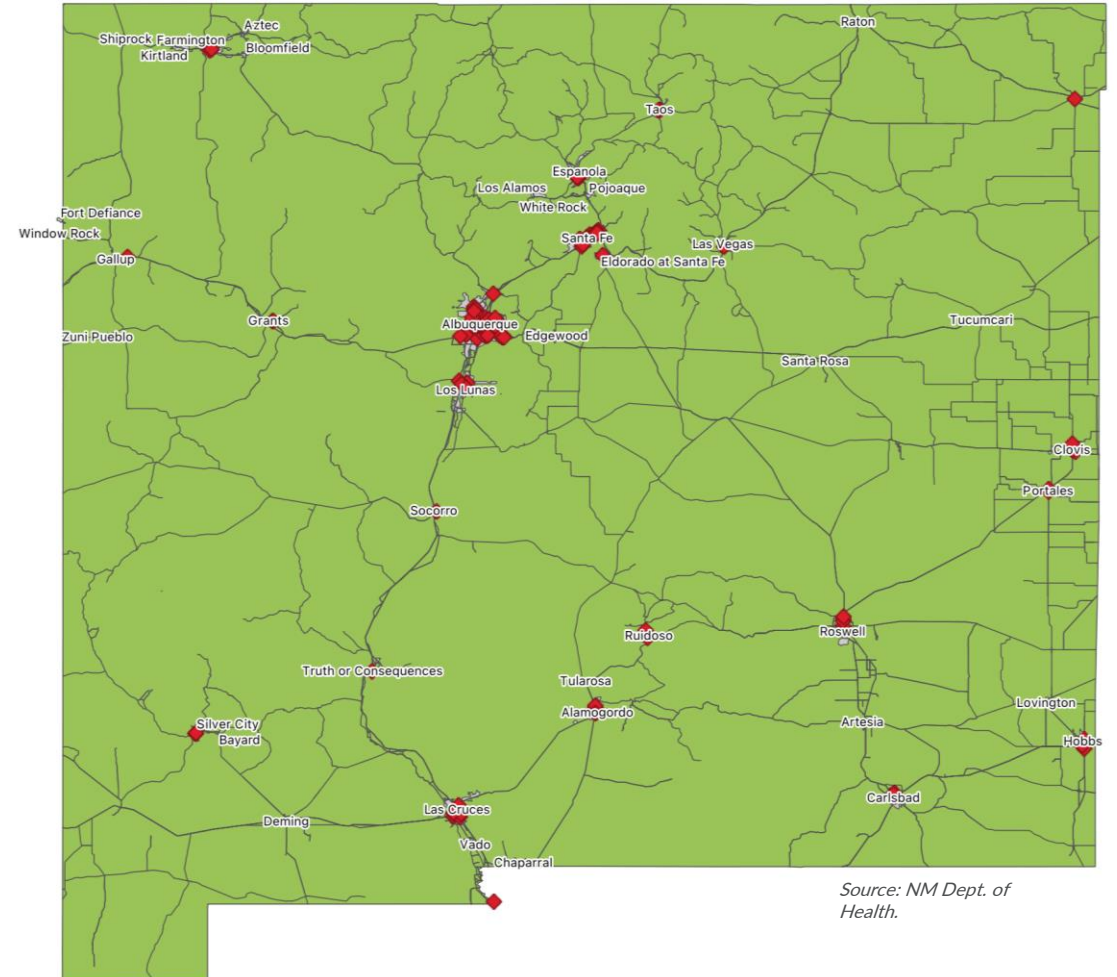
- Under the guidance of the Act, the NM Dept. of Health finalized their regulations in January 2009 establishing the rules for cultivators and clarifying that registered patients could cultivate their own cannabis.
- The production capacity for each cultivator is determined by the NM Dept. of Health. Under N.M. Code R. § 7.34.4.8, each cultivator is limited to no more than 1,750 cannabis plants.
- Effective June 1, 2021, a cultivator may request an increase of up to 500 plants that exceeds the total 1,750 plants allowed. This increase may be granted at the Department's discretion, based on demonstrated need, past yields, sales, inventory, complaints, enforcement actions, and any other relevant information.



# BACKGROUND: MEDICAL CANNABIS IN NEW MEXICO

- A New Mexico Licensed Producer (LPPs) is a state-licensed vertically integrated cannabis businesses that is allowed to grow medical cannabis plants; manufacture cannabis products; and dispense cannabis products to registered patients.
- The NM Dept. of Health has issued all possible 35 LPP licenses and is no longer accepting new applications. Two licenses have been revoked, bringing to current total to 33.
- There is no limit to the number of retail locations a LPP license holder may have – as of June 2021 there are 122 retail locations distributed throughout the state, shown in the map to the right.
- Based on July 2020 renewals, the Dept. of Health had approved a total of 51,250 plants, or an average of 1,553 per each of the current 33 cultivators.

## Map of Licensed NM Medical Cannabis Retail Locations

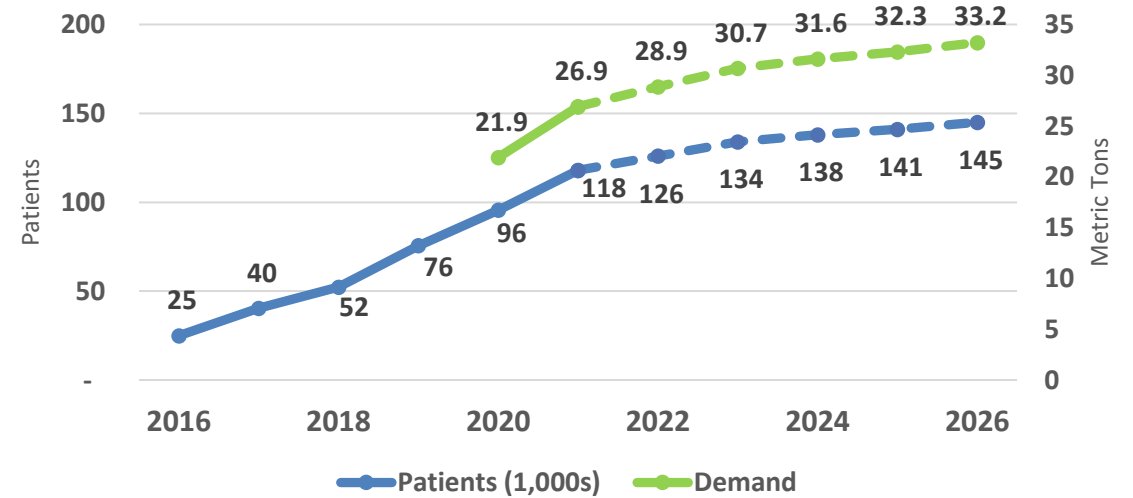


Source: NM Dept. of Health.

# BACKGROUND: MEDICAL CANNABIS IN NEW MEXICO

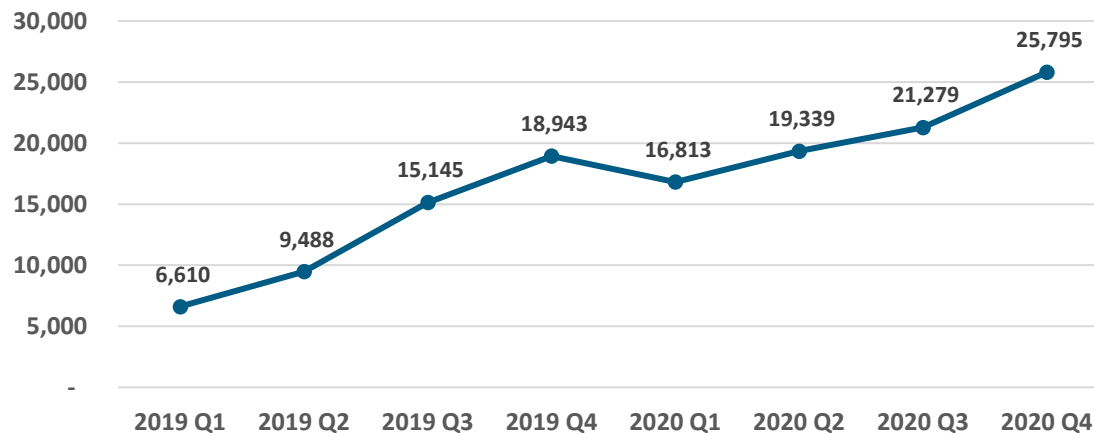
- The NM medical cannabis program has grown steadily over the past five years. The number of registered patients has increased from 25,000 in 2016 to 118,000 in May 2021. About 22 metric tons of cannabis and cannabis products was sold in 2020 totaling over \$200 million according to data imputed from the New Mexico Dept. of Health.
- Production has scaled to meet increasing demand for NM medical cannabis over time. The figure below shows plants harvested in each quarter from 2019 to 2020, illustrating the importance of additional and responsive production capacity.
- The average price for medical cannabis flower and buds has remained fairly consistent in recent years around \$10 per gram, shown to the bottom right.

## Registered Patients and Medical Cannabis Demand



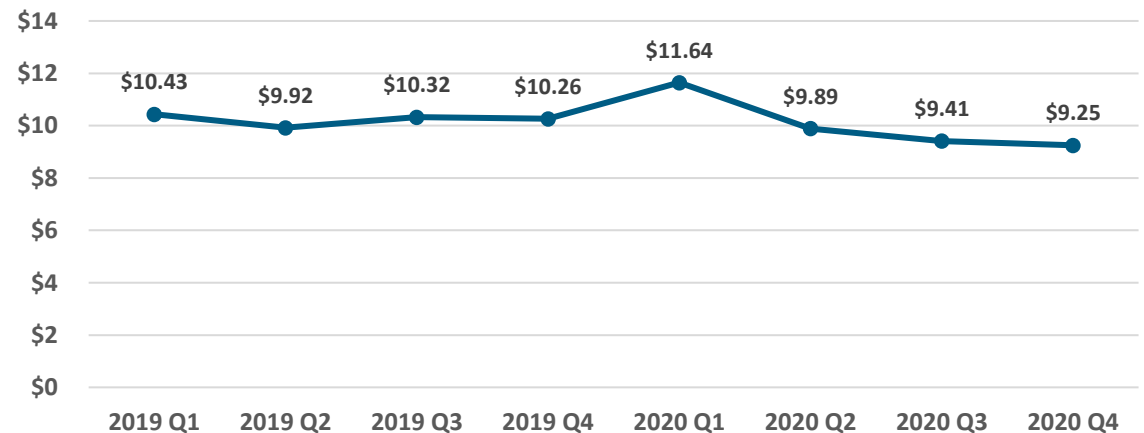
Source: NM Dept. of Health.

## Quarterly Plants Harvested



Source: NM Dept. of Health.

## Quarterly Average Price per Gram



Source: NM Dept. of Health.

## House Bill 2 – The Cannabis Regulation Act

Governor Lujan-Grisham signed the Cannabis Regulation Act (CRA) as House Bill 2 in April 2021, after calling for a special legislative session specifically to address the bill. A Cannabis Control Division has been created within the Regulation and Licensing Department to license and regulate cannabis businesses. House Bill 2 mandates that limitations on permitted producer plant counts and producer license fees be implemented via Cannabis Control Division Rules:

- **SECTION 40. PLANT LIMIT.**—No later than September 1, 2021, and each September 1 thereafter, the division shall by rule limit, by plant count, canopy or square footage, the number of cannabis plants that a licensee that is not an integrated cannabis microbusiness or a cannabis producer microbusiness may produce. The rule shall set the number of allowed cannabis plants per licensee to meet an average national market demand for cannabis products in states where adult and medical cannabis are authorized during the preceding year using a consumer base of no less than twenty of the adult population of New Mexico.

## Cannabis Control Division Proposed Rules

On May 25, 2021 the Cannabis Control Division released proposed rules for public comment, including definitions and limitations for plant counts:

- **16.8.8.6 OBJECTIVE:** The objective of Part 8 is to establish the limit of mature cannabis plants a licensee is authorized to cultivate pursuant to the Cannabis Regulation Act.
- **16.8.8.8 GENERAL PROVISIONS FOR PLANT COUNT:**
  - **B. Mature cannabis plant:** For purposes of this rule, a mature cannabis plant shall be a cannabis plant in the flowering stage.
- **16.8.8.9 PLANT LIMIT LEVELS:** A. Initial license designation: All producer licenses issued on or after July 1, 2021, will be designated by the division as a level 1, level 2, or level 3, which will be based on the following plant count:
  - (1) Level 1: 201 – 2,500 mature cannabis plants;
  - (2) Level 2: 2,501 – 3,500 mature cannabis plants; and
  - (3) Level 3: 3,501 – 4,500 mature cannabis plants

# TOTAL NEW MEXICO CANNABIS DEMAND AND MARKET SIZE

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## Demand and Market Sizing Approach

MPG has developed a clearly structured and defined process for analyzing and estimating cannabis markets and evaluating the requirements for those markets to be successful in the future for governments and businesses.



### Estimate Demand

- Use NSDUH prevalence rates, state patient counts, historical and demographic data to determine usage frequency and amounts.
- Determine overall demand in weight for the residential, medical, and visitor markets.



### Determine Product Pricing and Mix

- Estimate the price of various cannabis products over time.
- Determine price ratios through Flower Equivalent Analysis.
- Use established markets as a proxy for pricing and product mix.



### Quantify Market Size

- MPG demand and pricing analysis determine market size for recreational, medical, and visitor markets.
- Apply market capture from the regulated market to fine tune market estimates and projections



### Estimate Cultivation Requirements

- Leverage demand, population, tourism, and cultivation data to determine the proper amount of plants for a successful market.
- Stress test various average plant requirements to determine cultivation needs.



### Key Considerations

- Highlight key considerations for lawmakers to ensure the viability and economic health of the future New Mexico regulated cannabis market.

# TOTAL DEMAND AND MARKET SIZE

## Cannabis Use Trends and the New Mexico Market

- In order to estimate the New Mexico cannabis market size, it is critical to understand the underlying trends in cannabis use patterns, and the anticipated effects of legalization on those trends.
- Our analysis draws heavily from the National Survey on Drug Use and Health (NSDUH), an annual household survey that asks about cannabis use, including past-month use prevalence and the frequency of use within the past month.

Survey results from 2003 through 2019 show a slight upward trend in past month use among New Mexico residents, averaging 4.5% per year. However, not all past-month cannabis users are alike. NSDUH also asks about frequency of use, and the adult group of near-daily users (20+ days per month) has also steadily increased in recent years, by an average of 5.4% per year.

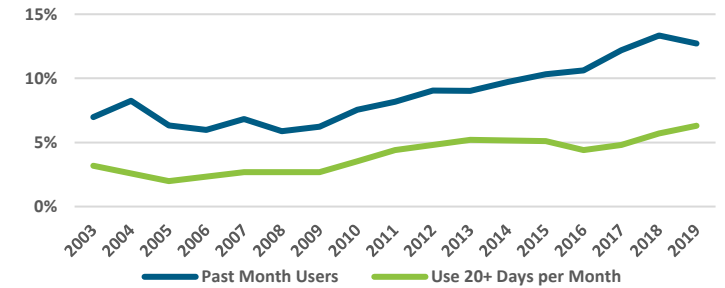
- Consistent with the “80/20 Pareto Rule”, NSDUH reveals that the small group of heaviest users (20+ days per month) account for a disproportionately large share of the aggregate use days. Coupled with the fact that they also consume more cannabis per use day, this group is a primary driver of aggregate demand.

Legalization itself can have a direct impact on cannabis consumption patterns, as the availability and social acceptance of cannabis increase. Oregon, Washington, and Colorado, some of the earliest states to legalize, have shown a marked increase in the number of past month cannabis users.

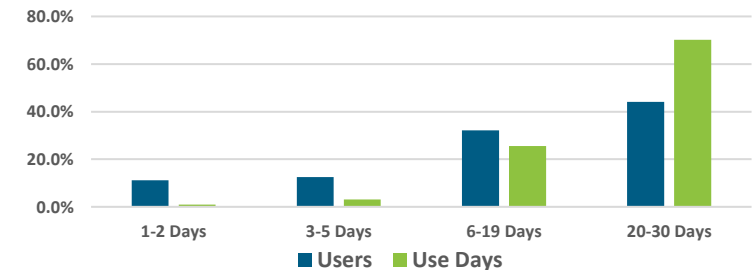
These factors combine to suggest that cannabis use will only increase from recent trends. We estimate a 12% annual average market growth in terms of quantity demanded.

Sources: NSDUH State Estimates, 2003-2018, NSDUH R-DAS, 2018/19, JLARC.

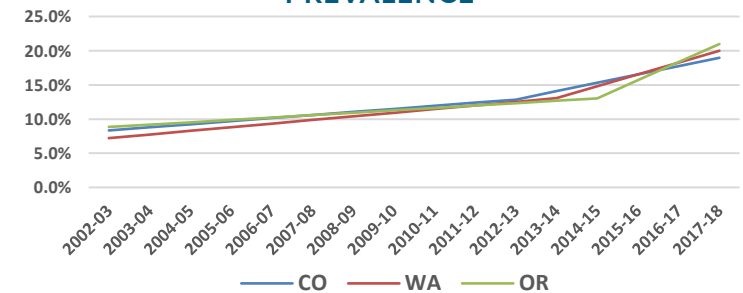
NEW MEXICO CANNABIS USE TRENDS (18+)



NEW MEXICO 18+ USERS AND USE DAYS BY FREQUENCY OF USE (2018/19)



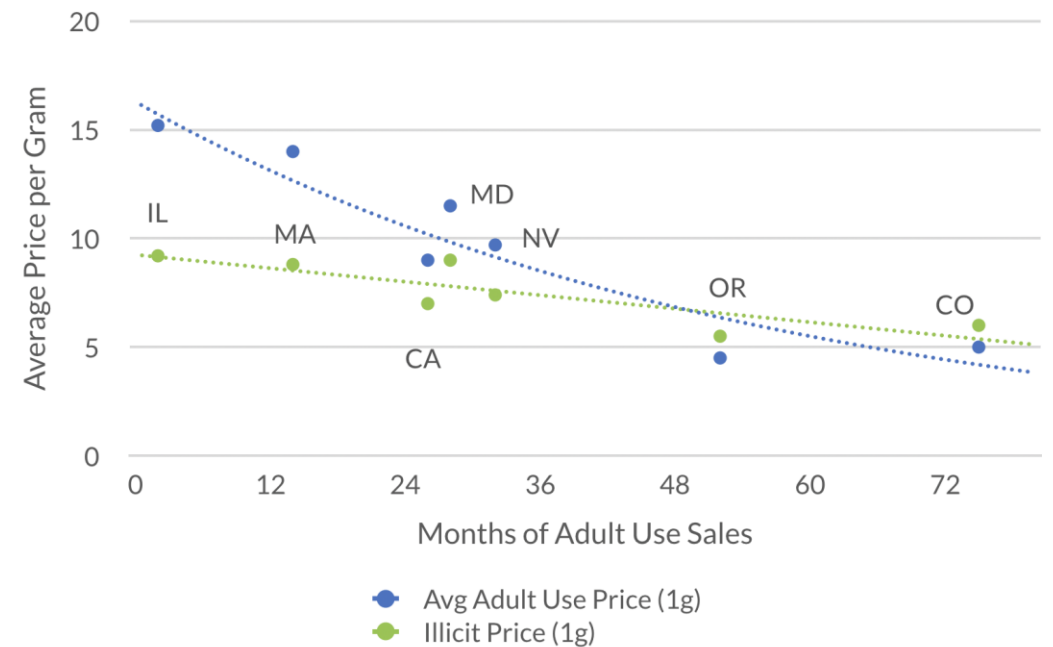
LEGALIZATION IMPACTS OF PAST MONTH USE PREVALENCE



## Cannabis Price Trends and the New Mexico Market

- Data on prices observed in adult use and medical cannabis are retrieved from a commercial point-of-sale data firm with a wide network of reporting business partners throughout key states (adult use cannabis states with available data are California, Colorado, Illinois, Massachusetts, Nevada, and Oregon).
- For each of these, we review available data relating to estimated illicit market share and illicit market cannabis prices, as well as legal market prices. These were cross checked with official state data on pricing where available.
- Following legalization, prices in both the adult use and illegal cannabis markets are likely to fall over time, as observed in the years after legalization in several states. This occurs as a function of increased supply, competition, and economies of scale in production.
- We examine current available price data in the New Mexico medical market as well as historical price trends across several legalized markets and product categories to establish an initial price of \$10 per gram of Flower Equivalent in New Mexico in 2022 when the adult use market becomes operational scenario.
- Based on observed price trends within legal markets, we project the price to decline by an average of approximately 5% per year.

ADULT USE AND ILLICIT CANNABIS PRICE TRENDS FOLLOWING LEGALIZATION



Sources: MPG Analysis; BDSA; Budzu.com.




# TOTAL DEMAND AND MARKET SIZE

## 2022 Total Cannabis Demand and Market Size in New Mexico

We estimate the 2022 total market demand for New Mexico cannabis in order to establish a baseline for our market projections and estimating the regulated market size and demand. This figure includes total demand from all supply channels.

The total demand for New Mexico cannabis is estimated at 168,100 pounds of Flower Equivalent products, with a total market value of \$762.5 million.

- The estimated quantity demanded is based on resident and visitor use patterns as described in the annual NSDUH surveys.
- The market size is calculated by multiplying the quantity demanded by the prevailing illicit market price, estimated at \$10 per gram of Flower Equivalent.
- A majority of the demand for NM cannabis (73.8%) is derived from adult residents; Texas cross-border users account for a significant portion of demand at 21.3%, and tourist visitors account for just 4.9%.

	POUNDS (1,000'S)	MARKET SIZE (\$M)
 <b>RESIDENTS</b>	124.1	\$562.7
 <b>TOURISTS</b>	8.1	\$37.0
 <b>CROSS-BORDER</b>	35.9	\$162.8
	<b>168.1</b>	<b>\$762.5</b>



# TOTAL DEMAND AND MARKET SIZE

## 5-Year New Mexico Cannabis Market Size Projections

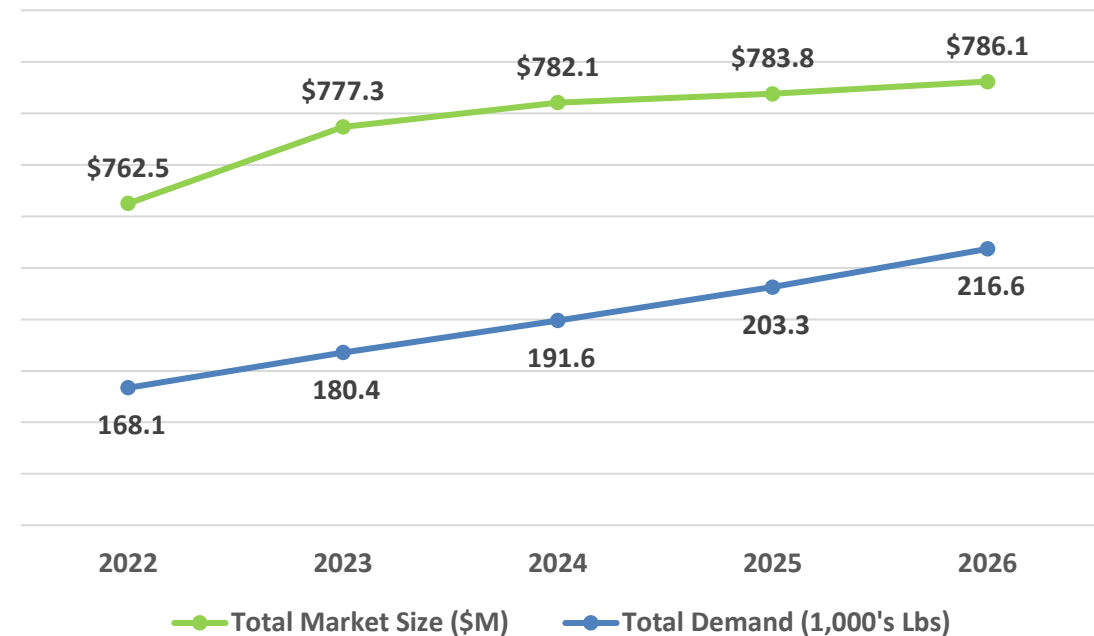
We combine our 2022 market estimates with observed usage and price trends to provide a 5-year projection of the total demand and market size for New Mexico cannabis.

- The estimated annual increase in quantity demanded is 7%, based on historically increasing trends in adult use prevalence, and more importantly an increase in heavy users among New Mexico residents and visitors described in the annual NSDUH survey reports, as well as the observed increase in adult use following legalization in other states.
- Total market size considers the prevailing market price, which is projected to decline by an average of approximately 5% per year once the market begins broad operations in 2022, based on trends observed in other legalized cannabis markets.

From 2022 to 2026 we estimate that the total quantity demanded will increase from 168.1M to 216.6M pounds of Flower Equivalent, and the total market size will increase from \$762.5 million to \$786.1 million.

Several detailed tables on demand estimation are provided in the Appendix.

NEW MEXICO TOTAL CANNABIS MARKET SIZE PROJECTIONS  
COMBINED REGULATED AND ILLICIT MARKETS



Source: MPG Analysis.

# REGULATED MARKET CAPTURE

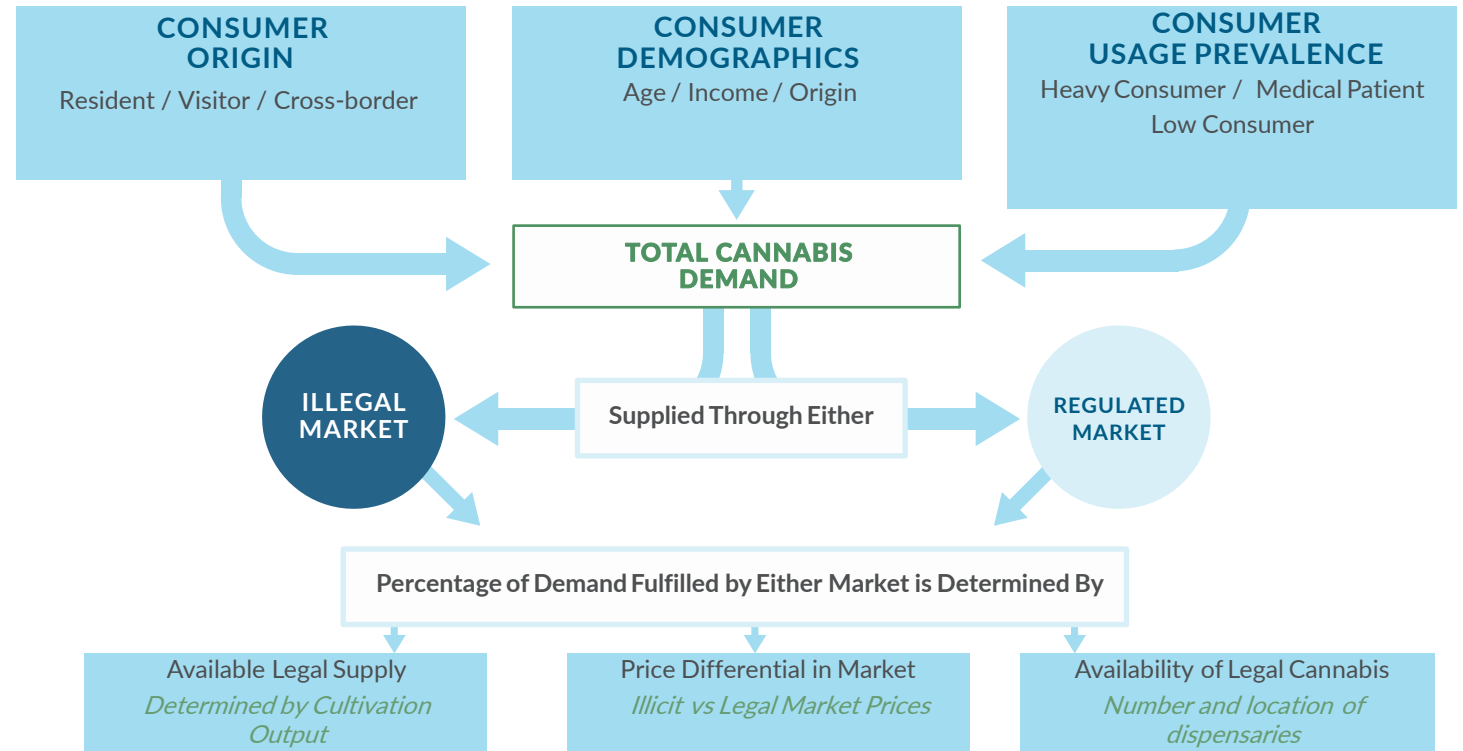
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## Cannabis Market Dynamics

The success of a regulated cannabis market is dependent on how effectively regulators can create a market structure to properly address demand.

Demand is a function of consumer characteristics and is supplied through either regulated or illicit markets. For consumers, an efficient cannabis regulatory system ensures that patients and customers have ample access to cannabis products at a competitive price. For business owners, an efficient system encourages compliance while supporting profitability.

Total product demand and potential store sales are different values when considering cannabis, due to the presence of a large, illicit segment in the market. Therefore, a keen understanding of how the cannabis market works is crucial to understand how market size estimates can translate into legal market sales for private enterprise or for a government agency.



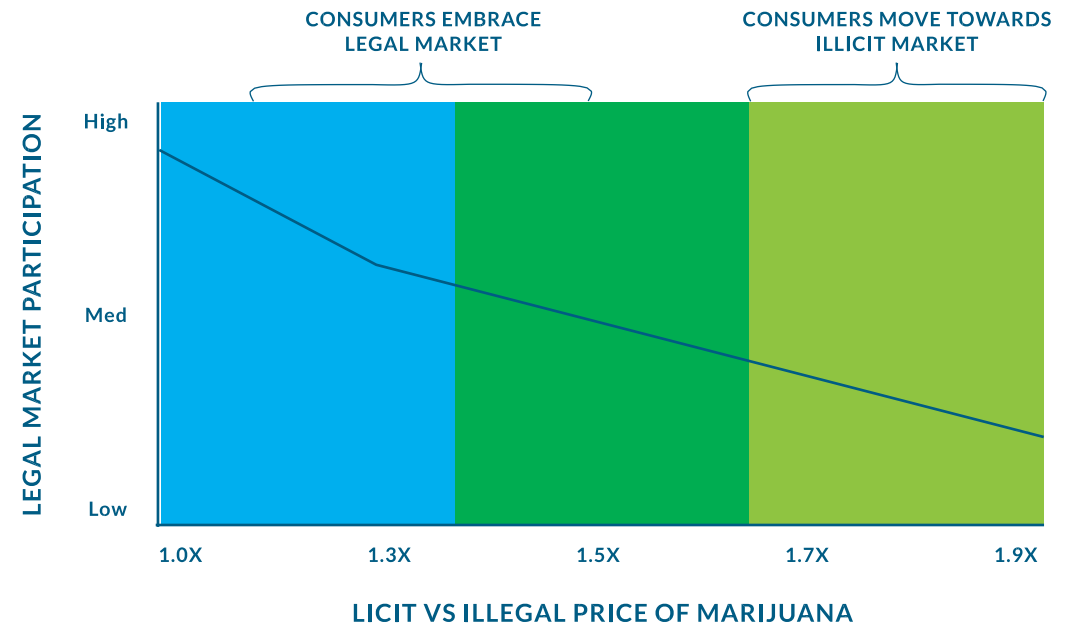
Source: MPG Analysis.

## Cannabis Pricing and Regulated Market Share

Estimating cannabis sales is different than other consumer goods because there are two segmented markets – medical and recreational cannabis, and within each market segment there are several alternatives to buying cannabis from a regulated vendor. Consumers can search for lower prices across different jurisdictions, in the same manner that drivers occasionally search for lower-priced fuels. Alternatively, they can revert to an illegal vendor, who either cultivates the product directly, or transports the product into New Mexico from other low-cost areas. Finally, they can even grow their own cannabis at home.

If prices in the regulated market are too high, many of the heaviest users will attempt to obtain lower-cost products that are untaxed. The figure to the right shows that lower prices will encourage participation in the regulated market. Consumers will likely remain with illicit market suppliers if prices are too high. Taxes and market competition are two key drivers of the final price paid by consumers.

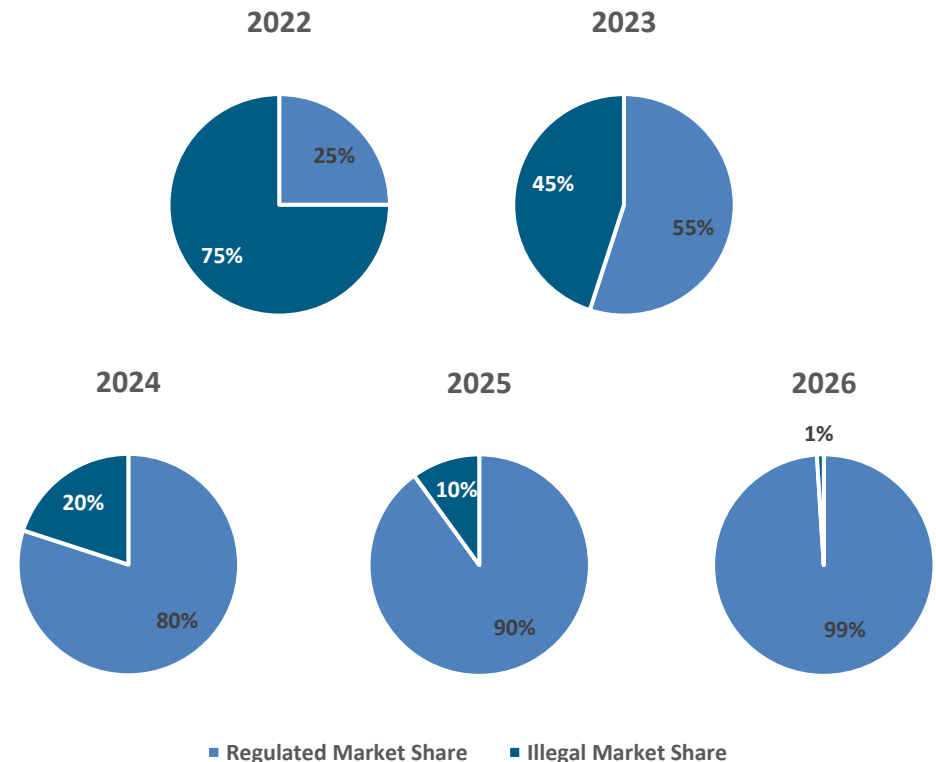
Colorado initially had lower taxes and more licensed business than Washington, and as a result regulated prices were more competitive with the illicit market, yielding significantly more success at reducing illicit market activity in 2014 and 2015, the first two years of legalization.



## New Mexico – Regulated Market Capture

- There are several potential supply channels in New Mexico, both from market and non-market sources, and supplies can be either legal or illegal. Examples of non-market or unlicensed supply includes illegally imported cannabis from other states or countries, and local but illegally-grown cannabis.
- As more states legalize, the rate at which the regulated market captures demand from the illicit market has increased as consumers become more comfortable and familiar with regulated retail businesses and prices.
- After legalization in 2014, unlicensed Colorado supply fell to 36% and licensed suppliers accounted for about 64% of total estimated demand. Home growing was estimated to supply 8% of demand, gray-market “caregivers” were estimated to supply 22% of demand, and the remainder was assumed to be traditional illicit market suppliers.
- The main point is that legal, licensed retailers are not likely to capture 100% of resident demand right away. Between 20% and 30% market capture of total demand is a more realistic estimate in the early years of a legalized medical market, given the current illicit cannabis market. This aligns with observations of increasing initial capture rates as more states legalize.
- MPG estimates that the initial regulated market capture for New Mexico residents will be approximately 25% in the 2022, growing to 99% by 2026. This represent an average annual growth rate of 47% in market capture. The projected growth in regulated market share is presented to the right.
- The estimated market capture rates for demand from medical patients, tourists, and cross-border Texas consumers is assumed to be 100% for all years.

ESTIMATED NM RESIDENT MARKET CAPTURE RATES FOLLOWING LEGALIZATION



Source: MPG Analysis.

## REGULATED MARKET CAPTURE

### New Mexico – Regulated Market Size

The table below summarizes the estimated demand and market size for New Mexico cannabis by segment and year. In 2022 we estimate a total of 122,788 pounds of cannabis supplied by the regulated market, increasing to 215,687 by 2026. Total regulated sales are projected at \$557.0 million in 2022, growing to \$782.7 million in 2026.

	2022	2023	2024	2025	2026
Adult Population	1,620,500	1,625,038	1,629,588	1,634,151	1,638,726
Past Month Prevalence	14.9%	16.6%	18.6%	20.8%	23.3%
Past-month cannabis consumers (PMCC)	240,790	270,149	303,086	340,040	381,500
Resident Adult Use Demand (Metric Tons MT)	27.4	30.8	34.5	38.7	43.4
Medical Demand (MT)	28.9	30.7	31.6	32.3	33.2
Visitor Demand (MT)	3.7	3.8	3.8	3.9	4.0
Cross-Border Demand (MT)	16.3	16.6	16.9	17.3	17.6
<b>Total Demand (MT)</b>	<b>76.3</b>	<b>81.8</b>	<b>86.9</b>	<b>92.2</b>	<b>98.3</b>
<b>Total Demand (Pounds)</b>	<b>168,107</b>	<b>180,396</b>	<b>191,580</b>	<b>203,285</b>	<b>216,645</b>
Resident Regulated Market Capture (100% Capture assumed for other segments)	25%	55%	80%	90%	99%
Total Regulated Demand (MT)	55.7	68.0	80.0	88.3	97.8
Total Regulated Demand (Lbs)	122,788	149,889	176,368	194,752	215,687
<b>Price/gram</b>	<b>\$ 10.00</b>	<b>\$ 9.50</b>	<b>\$ 9.00</b>	<b>\$ 8.50</b>	<b>\$ 8.00</b>
<b>Regulated Market Size</b>	<b>\$ 557.0</b>	<b>\$ 645.9</b>	<b>\$ 720.0</b>	<b>\$ 750.9</b>	<b>\$ 782.7</b>

Source: MPG Analysis.

# PRODUCTION CONTROL SYSTEM CONSIDERATIONS: PLANTS COUNT ALLOCATIONS

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## Plant Count Allocations

The purpose of a state production control system is to balance supply and demand and combat diversion incentives.

The second most common method of production control (after canopy square footage) is maximum plant-count allocations assigned to each cultivation license.

- New Mexico has utilized this approach for medical cannabis, and intends to use it for the adult use market as well
- The plant count allocation designates the number of plants a producer may have in production *at a given time*
- This methodology has the benefit of being the legacy system for current cannabis production facility license holders
- Regulators and cannabis cultivators are accustomed to auditing and tracking plant counts
- It is transparent, systematic, operable, and defensible
- Plant counts can be systematically applied to all cultivation operations, including outdoor grows
- State can designate Immature and/or Mature Plants
- There are potential distortions that arise from overly limiting plant counts, such as:
  - Shifting production focus to fewer, more efficient strains and products that ultimately limit patient and consumer selection;
  - Upward price pressure in a limited supply market (seller's market);
  - Increasing potency (primarily average THC levels) in plants;
  - Changing the duration of various stages of the seed to harvest process; and
  - Driving production toward indoor, hydroponic cultivation methods and away from outdoor operations.

In order to match an appropriate total state-wide plant count allocation to estimated demand, it is critical to understand the current trends in cannabis plant harvest cycles and yields. The following slides present a review of these parameters based on official production data from states with regulated cannabis markets and experienced grower reports. **Plant counts are based on total demand in order to account for the total market size.** Total market capture should be the goal for the regulated market, so total demand is the appropriate target parameter for production control.



# CULTIVATION TRENDS

## Yield (Lbs) per Harvested Plant

Source	Technique (indoor, outdoor, greenhouse)	Lb/Plant			Year of Estimate
		Low	Mid	High	
Colorado MED Mid-Year Update 2020	All Types	0.22	<b>0.38</b>	0.60	<b>2020</b>
Colorado MED 2019 Annual Update	All Types	0.28	<b>0.44</b>	0.70	<b>2019</b>
Canada Health	All Types	0.29	<b>0.42</b>	0.67	<b>2020</b>
Ultra Health Interview	Indoor	0.21	<b>0.44</b>	0.50	<b>2021</b>
Washington 2014-2017 (Kilmer 2019)	All Types	0.21	<b>0.22</b>	0.24	<b>2019</b>
New Mexico Dept. of Health	All Types		<b>0.47</b>		<b>2020</b>
<b>AVERAGE</b>		0.24	<b>0.39</b>	0.54	

Source: MPG Analysis.

- The first component necessary to determine how plant count limitations affect total production capacity is the average yield per plant.
- The table above provides a review of available harvest and yield data from multiple jurisdictions. These figures are calculated from official compliance data gathered by regulatory agencies and represent the average plant yields across their entire markets. There are millions of observations behind the averages displayed.
- Across the observed data there is a narrow range of average midpoint plant yields, with an average of 0.39 pounds of usable material per harvested plant, with an estimated range of 0.24 to 0.54 pounds per plant.
- It is important to note that the average yield figures above include all modes of cultivation including indoor, outdoor, and greenhouse production. This industry-wide data accounts for the realities of regulated production such as loss, disease, etc. We believe these figures better represent a true picture of average yields over a broad range of cultivation scenarios, whereas other estimates suggest a maximum yield based on the best possible outcome under ideal conditions, i.e., 0.75 pounds per plant observed in state of New Mexico planning documents.

# CULTIVATION TRENDS

## Days per Harvest & Harvests per Year (Seed to Harvest)

Source	Cultivation Method	Full Plant Life Cycle (Days, Seed to Harvest)			Plant Harvests per Year			Year of Estimate
		Low	Mid	High	Low	Mid	High	
Leafly	All Types	94	<b>157</b>	220	1.7	<b>2.3</b>	3.9	<b>2021</b>
Ultra Health Interview	Indoor	114	<b>117</b>	119	3.1	<b>3.1</b>	3.2	<b>2021</b>
Colorado MED Mid-Year Update 2020	Indoor		<b>125</b>			<b>2.9</b>		<b>2021</b>
SensiSeeds	All Types	77	<b>137</b>	196	1.9	<b>2.7</b>	4.7	<b>2020</b>
Cannabis Training University	Indoor	98	<b>161</b>	224	1.6	<b>2.3</b>	3.7	<b>2018</b>
The Cannabist	Outdoor	115	<b>160</b>	165	2.2	<b>2.3</b>	3.2	<b>2016</b>
Royal Queen Seeds	Indoor	71	<b>116</b>	161	2.3	<b>3.1</b>	5.1	<b>2017</b>
CleanLeaf	Indoor	84	<b>119</b>	154	2.4	<b>3.1</b>	4.3	<b>2021</b>
<b>AVERAGE</b>		93	<b>136</b>	177	2.2	<b>2.7</b>	4.0	

Source: MPG Analysis.

- The other key component of production capacity under plant count limitations is how frequently a producer can harvest their crops.
- The table above presents a review of seed-to-harvest plant lifecycle reports describing the average number of days from planting a cannabis crop until harvest.
- Recent reports suggest an average of 136 days from planting until harvest, with a range of 93 to 177 days.
- These figures indicate that each plant allocation can be harvested an average of 2.7 times per year, with a range of 2.2 to 4.0 annual harvests.
- These figures are applicable when a policy limits the total number of plants producers are permitted, regardless of their growth stage.

## Annual Yield per Plant Count (Seed to Harvest)

	Low	Midpoint	High
Full Plant Harvest Cycles per Year (Seed to Harvest)	2.3	<b>2.7</b>	3.9
Lbs per Harvested Plant	0.2	<b>0.4</b>	0.5
Annual Lbs per Plant Allocation (Seed to Harvest)	0.5	<b>1.1</b>	2.1

*Source: MPG Analysis.*

- The previous figures on harvest cycles and plant yields can be combined to estimate the annual yield of an individual plant allocation for producers, shown in the table above.
- A full lifecycle plant that counts towards a producer's plant count from seed to harvest can be harvested 2.7 times per year, based on the average estimated lifecycle of 136 days.
- If each plant harvest yields 0.4 pounds, then the annual yield per plant allocation is 1.1 pounds.
- This figure is used on the following slide to convert total pounds of demand into minimum plant count allocations for New Mexico.

## CULTIVATION TRENDS

### Annual Yield per Plant Count (Seed to Harvest)

	2022	2023	2024	2025	2026
<b>Total Market Demand (Lbs)</b>	<b>168,107</b>	<b>180,396</b>	<b>191,580</b>	<b>203,285</b>	<b>216,645</b>
Total Harvested Plants Needed (0.4lbs per Plant)	428,607	459,938	488,454	518,297	552,358
Total Plant Allocations Needed (Seed to Harvest, 1.1lbs per Allocation)	154,572	165,871	176,155	186,918	199,201

*Source: MPG Analysis.*

- The table above combines total estimated demand for New Mexico cannabis with the plant yields suggested by a review of available market data and literature.
- Total estimated demand is projected at 168,107 pounds in 2022, including both medical and adult use sales. As the regulated market grows and consumers transition out of the illicit market, total demand is projected to reach 216,645 pounds by 2026.
- At an average of 0.4 pounds per harvested plant, the number of individual plants needed to supply the estimated demand is 428,607 in 2022, growing to 552,358 plants in 2026.
- Where we found an average annual yield per plant allocation of 1.1 pounds, the number of plant allocations needed to supply the estimated demand grows from 154,572 in 2022 to 186,997 in 2026.

# CULTIVATION TRENDS

## Flowering Stage Days & Harvests per Year (Mature Plants)

Source	Cultivation Method	Flowering Stage (Days, Mature Plants)			Mature Plant Harvests per Year			Year of Estimate
		Low	Mid	High	Low	Mid	High	
Colorado MED Mid-Year Update 2020	All Types		57			6.4		2020
Ultra Health Interview	Indoor		56					2021
Leafly	All Types	56	67	77	4.7	5.5	6.5	2021
SensiSeeds	All Types	28	56	84	4.3	6.5	13.0	2020
Cannabis Training University	Indoor	42	66	90	4.1	5.5	8.7	2018
Royal Queen Seeds	Indoor	42	63	84	4.3	5.8	8.7	2017
Grow With Jane	Indoor	42	63	84	4.3	5.8	8.7	2020
WikiLeaf	Indoor	42	56	70	5.2	6.5	8.7	2018
CleanLeaf	Indoor	42	49	56	6.5	7.4	8.7	2021
<b>AVERAGE</b>		42	59	78	4.8	6.2	9.0	

Source: MPG Analysis.

- In New Mexico, plant limitations refer to “mature plants”, or those in the flowering stage only. The table above presents the average days of the flowering stage, as well as the number of mature plant harvests possible within a year if all mature plant allocations are filled to capacity for the entire year.
- This approach assumes that producers have a vegetative plants ready to move to the flowering room immediately following the harvest of each mature plant.
- Surveyed reports suggest that cannabis plants average 60 days in the flowering stage as “mature plants” before harvest, with a range of 42 to 78 days.
- These figures indicate that each mature plant allocation can be harvested an average of 6.2 times per year, with a range of 4.8 to 9.0 annual harvests.
- Under the definitions found in New Mexico regulations, the flowering stage best represents the number of times a producer can harvest mature plants.

## Annual Yield per Plant Count (Mature Plants)

	Low	Midpoint	High
Mature Plant Harvest Cycles per Year (Flowering Only)	4.8	<b>6.2</b>	9.0
Lbs per Harvested Plant	0.2	<b>0.4</b>	0.5
Annual Lbs per Mature Plant Allocation (Flowering Only)	1.2	<b>2.5</b>	4.9

*Source: MPG Analysis.*

- The previous figures on flowering stage days and plant yields can be combined to estimate the annual yield of an individual mature plant allocation for producers, shown in the table above.
- A flowering plant that counts towards a producer’s mature plant count allocation can be harvested 6.2 times per year, based on the average estimated lifecycle of 59 days.
- If each plant harvest yields 0.4 pounds, then the annual yield per mature plant allocation is 2.5 pounds.
- This figure is used on the following slide to convert total pounds of demand into minimum mature plant count allocations for New Mexico.

## CULTIVATION TRENDS

### Annual Yield per Plant Count (Mature Plants)

	2022	2023	2024	2025	2026
<b>Total Market Demand (Lbs)</b>	<b>168,107</b>	<b>180,396</b>	<b>191,580</b>	<b>203,285</b>	<b>216,645</b>
Total Harvested Plants Needed (0.4lbs per Plant)	428,607	459,938	488,454	518,297	552,358
Total Mature Plant Allocations Needed (Flowering Only, 2.5lbs per Allocation)	66,910	71,801	76,253	80,912	86,229

*Source: MPG Analysis.*

- The table above combines total estimated demand for New Mexico cannabis with the plant yields suggested by a review of available market data and literature.
- Total estimated demand is projected at 168,107 pounds in 2022, including both medical and adult use sales. As the regulated market grows and consumers transition out of the illicit market, total demand is projected to reach 216,645 pounds by 2026.
- At an average of 0.4 pounds per harvested plant, the number of individual plants needed to supply the estimated demand is 428,607 in 2022, growing to 552,358 plants in 2026.
- Where we found an average annual yield per mature plant allocation of 2.5 pounds, the number of mature plant allocations needed to supply the estimated demand grows from 66,910 in 2022 to 86,229 in 2026.

# PRODUCTION CONTROL BENCHMARKS

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## Plant Count Allocations and Equivalents

- Several states with regulated adult use cannabis markets have imposed production control systems using canopy square footage and plant count allocations.
- The tables on the following pages provide the number of licenses, production control mechanism and definition, total licensed production, a description of the license tiers, and a conversion of each states' production control mechanism to an equivalent plant count allocation.
- In order to calculate equivalents between total plant canopy, flowering canopy, mature plants, and total plants, we impose the following conditions throughout the analysis:
  - Full cannabis plants can be grown from seedling to harvest in 136 days on average, while the mature flowering stage of growth lasts for an average of 59 days. The ratio between these figures indicates a ratio of 0.434 mature flowering plants per plant, in terms of production timelines.
  - Each cannabis plant utilizes 3 square feet of canopy space.
  - Where canopy space can include immature and mature plants, we assume that 67 percent of the total square footage is dedicated to mature plants.

On average, each producer licensee across the surveyed states has an estimated 8,478 plant count allocation, with a range of 3,399 to 25,667 plants, based on our canopy-to-plants conversions (excluding New Mexico).

The largest average producer license tier in each state allows for up to 35,148 plants, with a range of 4,610 to 161,345 plants.

# PRODUCTION CONTROL SYSTEMS IN OTHER STATES

## Plant Count Allocations and Equivalents

State	First Legal Sales	Cultivation Licenses (MMJ+RMJ)	Production Limitation Mechanism	Limitation Mechanism Definition	Total Licensed Sq Ft	Total Licensed Plants	Tier System	Tier Description	Largest RMJ Producer Tier (Plants)	Average Plants per License
Colorado	2014	1,222	Plants	"Plant" means any cannabis plant in a cultivating medium which plant is more than four inches wide or four inches high or a flowering cannabis plant regardless of the plant's size.	N/A	2,710,600	Yes	<b>MMJ:</b> Class 1 (1-500 plants) Class 2 (501-1500 plants) Class 3 (1501-3000 plants)  <b>RMJ:</b> Tier 1 (1-1,800 plants) Tier 2 (1,801-3,600 plants) Tier 3 (3,601-6,000 plants) Tier 4 (6,001-10,200 plants) Tier 5 (10,201-13,800 plants)	13,800	5,113
Washington	2014	1,076	Canopy	"Canopy" is defined in WAC 314-55-010 as "the square footage dedicated to live plant production, such as maintaining mother plants, propagating plants from seed to plant tissue, clones, vegetative or flowering area. Plant canopy does not include areas such as space used for the storage of fertilizers, pesticides, or other products, quarantine, office space, etc."	18,064,000	N/A	Yes	Tier 1 (<2,000 SF) Tier 2 (2,000 - 10,000 SF) Tier 3 (10,000 - 30,000 SF)	10,000	5,596
Alaska	2016	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: MPG Analysis.

# PRODUCTION CONTROL SYSTEMS IN OTHER STATES

## Plant Count Allocations and Equivalents

State	First Legal Sales	Cultivation Licenses (MMJ+RMJ)	Production Limitation Mechanism	Limitation Mechanism Definition	Total Licensed Sq Ft	Total Licensed Plants	Tier System	Tier Description	Largest RMJ Producer Tier (Plants)	Average Plants per License
Oregon	2015	1,319	Canopy	<p>Square footage of a canopy area is measured horizontally starting from the outermost point of the furthest plant in a designated canopy area and continuing around the outside of all plants located within the designated canopy area. If immature plants are grown on racks or shelving within the immature canopy area, only the footprint of the area containing the immature plants will be used to calculate the immature canopy area. The total canopy area of mature plants grown on racks or shelving is measured to include each layer of plants as a separate canopy area.</p> <p>(b) Maximum canopy areas allowed. A producer must either:                      (A) Designate no more than 20 quadrilateral canopy areas including both immature and mature canopy areas at a licensed premises and clearly demarcate each canopy area with a physical boundary, wall, or marker at the outermost edge or each corner of each designated canopy space; or by at least eight feet of open space.                      (B) Designate no more than 20 canopy areas of any shape including both immature and mature canopy areas at a licensed premises and provide the Commission with a survey of the canopy space conducted by a Professional Land Surveyor licensed by Oregon State Board of Examiners for Engineering and Land Surveying that shows the total square footage each of mature and immature canopies are within the applicable canopy size limits described in this rule.</p>	Data Request Pending	N/A	Yes	<p><b>Indoor:</b>                      Micro tier I: Up to 625 SF                      Micro tier II: 626 to 1,250 SF                      Tier I: 1,251 to 5,000 SF                      Tier II: 5,001 to 10,000 SF</p> <p><b>Outdoor:</b>                      Micro tier I: Up to 2,500 SF                      Micro tier II: 2,501 to 5000 SF                      Tier I: 5,001 to 20,000 SF                      Tier II: 20,001 to 40,000 SF</p> <p><b>Mixed:</b>                      The Commission will use a 4:1 ratio, for outdoor and indoor respectively, to allocate canopy size limits under this section</p> <p><b>Immature Canopy Size Limits:</b>                      Micro tier I: 625 SF                      Micro tier II: 1,250 SF                      Tier I: 5,000 SF                      Tier II: 10,000 SF</p>	7,683	Data Request Pending
Illinois	2020	21	Canopy	A cultivation center may not contain more than 210,000 square feet of canopy space for plants in the flowering stage for cultivation of adult use cannabis as provided in this Act.	1,617,000	N/A	Yes	Craft: 14,000 SF Curative: 210,000 SF	161,345	25,667

# PRODUCTION CONTROL SYSTEMS IN OTHER STATES

## Plant Count Allocations and Equivalents

State	First Legal Sales	Cultivation Licenses (MMJ+RMJ)	Production Limitation Mechanism	Limitation Mechanism Definition	Total Licensed Sq Ft	Total Licensed Plants	Tier System	Tier Description	Largest RMJ Producer Tier (Plants)	Average Plants per License
Massachusetts	2018	48	Canopy	Canopy means an area to be calculated in square feet and measured using clearly identifiable boundaries of all areas(s) that will contain Flowering and/or Vegetative plants larger than eight inches tall and eight inches wide at any point in time, including all of the space(s) within the boundaries. Canopy may be noncontiguous, but each unique area included in the total Canopy calculations shall be separated by an identifiable boundary which includes, but is not limited to: interior walls, shelves, Greenhouse walls, hoop house walls, garden benches, hedge rows, fencing, garden beds, or garden plots. If Flowering and/or Vegetative plants larger than eight inches tall and eight inches wide are being cultivated using a shelving system, the surface area of each level shall be included in the total Canopy calculation.	1,485,000	N/A	Yes	Tier 1: up to 5,000 SF Tier 2: 5,001 to 10,000 SF Tier 3: 10,001 to 20,000 SF Tier 4: 20,001 to 30,000 SF Tier 5: 30,001 to 40,000 SF Tier 6: 40,001 to 50,000 SF Tier 7: 50,001 to 60,000 SF Tier 8: 60,001 to 70,000 SF Tier 9: 70,001 to 80,000 SF Tier 10: 80,001 to 90,000 SF Tier 11: 90,001 to 100,000 SF	51,477	10,313
Maine	2020	234	Canopy	"Plant canopy" means the total surface area within a cultivation area that is dedicated to the cultivation of mature marijuana plants. The surface area of the plant canopy must be calculated in square feet and measured using the outside boundaries of the area and must include all of the area within the boundaries. If the surface area of the plant canopy consists of noncontiguous areas, each component area must be separated by identifiable boundaries. If a tiered or shelving system is used in the cultivation area the surface area of each tier or shelf must be included in calculating the area of the plant canopy. Calculation of the area of the plant canopy may not include the areas within the cultivation area that are used to cultivate immature marijuana plants and seedlings and that are not used at any time to cultivate mature marijuana plants.	1,777,500	N/A	Yes	Tier 1: 500 SF or 30 mature plants Tier 2: 2,000 SF Tier 3: 7,000 SF Tier 4: 20,000 SF	15,366	5,836

Source: MPG Analysis.

# PRODUCTION CONTROL SYSTEMS IN OTHER STATES

## Plant Count Allocations and Equivalents

State	First Legal Sales	Cultivation Licenses (MMJ+RMJ)	Production Limitation Mechanism	Limitation Mechanism Definition	Total Licensed Sq Ft	Total Licensed Plants	Tier System	Tier Description	Largest RMJ Producer Tier (Plants)	Average Plants per License
Arizona	2021	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
California	2018	7,258	Canopy	<p>“Canopy” means the designated area(s) at a licensed premises, except nurseries and processors, that will contain mature plants at any point in time, as follows:</p> <p>(1) Canopy shall be calculated in square feet and measured using clearly identifiable boundaries of all area(s) that will contain mature plants at any point in time, including all of the space(s) within the boundaries;</p> <p>(2) Canopy may be noncontiguous but each unique area included in the total canopy calculation shall be separated by an identifiable boundary that includes, but is not limited to, interior walls, shelves, greenhouse walls, hoop house walls, garden benches, hedgerows, fencing, garden beds, or garden plots; and</p> <p>(3) If mature plants are being cultivated using a shelving system, the surface area of each level shall be included in the total canopy calculation.</p>	74,585,840	N/A	Yes	<p><b>Indoor:</b>                      Type 1A – Specialty indoor (small): 501 - 5,000 SF                      Type 2A – Indoor (small): 5,001 – 10,000 SF                      Type 3A – Indoor (medium): 10,001 - 22,000 SF                      Type 5A – Indoor (large): &gt; 22,000 SF</p> <p><b>Outdoor:</b>                      Type 1 – Specialty outdoor (small): ≤ 5,000 SF, or up to 50 mature plants                      Type 2 – Outdoor (small): 5,001 - 10,000 SF                      Type 3 – Outdoor (medium): 10,001 SF – 1 acre                      Type 5 – Outdoor (large): &gt; 1 acre</p> <p><b>Mixed Light:</b>                      Type 1B – Specialty mixed-light (small): 2,501 - 5,000 SF                      Type 1C – Specialty cottage (small): ≤ 2,500 SF, or up to 25 outdoor mature plants, or ≤ 500 SF total indoor canopy                      Type 2B – Mixed-light (small): 5,001 – 10,000 SF                      Type 3B – Mixed-light (medium): 10,001 - 22,000 SF                      Type 5B – Mixed-light (large): &gt; 22,000 SF</p>	16,903	3,425

Source: MPG Analysis.

# PRODUCTION CONTROL SYSTEMS IN OTHER STATES

## Plant Count Allocations and Equivalents

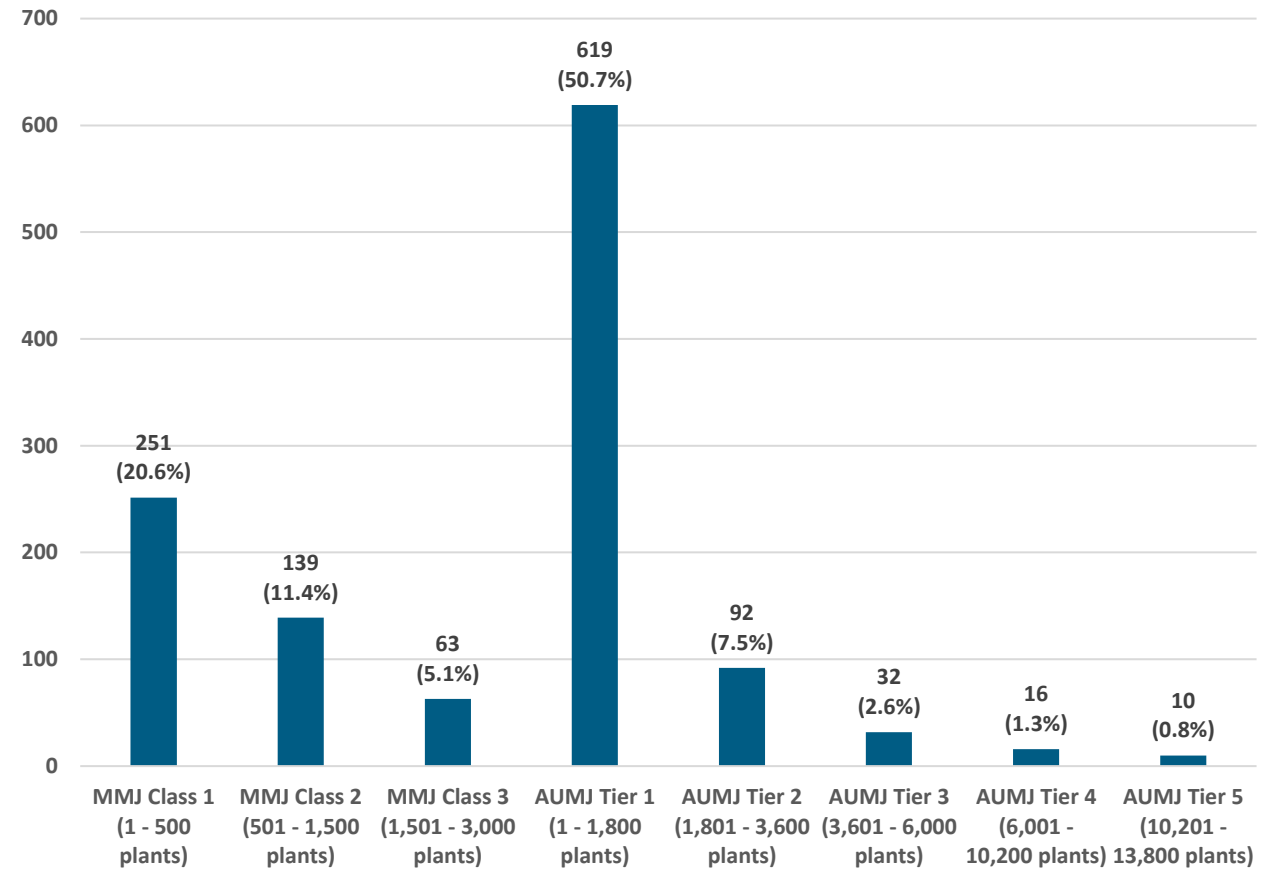
State	First Legal Sales	Cultivation Licenses (MMJ+RMJ)	Production Limitation Mechanism	Limitation Mechanism Definition	Total Licensed Sq Ft	Total Licensed Plants	Tier System	Tier Description	Largest RMJ Producer Tier (Plants)	Average Plants per License
Michigan	2019	550	Mature Plants	"Mature plant" means a flowering or nonflowering marihuana plant that has taken root and is taller than 8 inches from the growing or cultivating medium or wider than 8 inches, produced from a cutting, clipping, tissue culture, or seedling, and that is in a growing or cultivating medium or in a growing or cultivating container.	N/A	811,000	Yes	<b>Medical:</b> Class A: 500 mature plants Class B: 1,000 mature plants Class C: 1,500 mature plants Excess Marijuana Grower: 2,000 mature plants  <b>Adult Use:</b> Class A: 100 plants Class B: 500 plants Class C: 2,000 plants	4,610	3,399
New Mexico	2021	33	Mature Plants	"Mature cannabis plant" - For purposes of this rule, a mature cannabis plant shall be a cannabis plant in the flowering stage. (NMAC 16.8.8.8 (B))  16.8.8.6 OBJECTIVE: The objective of Part 8 is to establish the limit of mature cannabis plants a licensee is authorized to cultivate pursuant to the Cannabis Regulation Act.	N/A	51,250 (Medical Only)	Yes	<b>RMJ Proposed Tiers:</b> Level 1: 201 - 2,500 mature plants Level 2: 2,501 - 3,500 mature plants Level 3: 3,501 - 4,500 mature plants	4,500	1,553

Source: MPG Analysis.

## Other States' License Tier Distributions

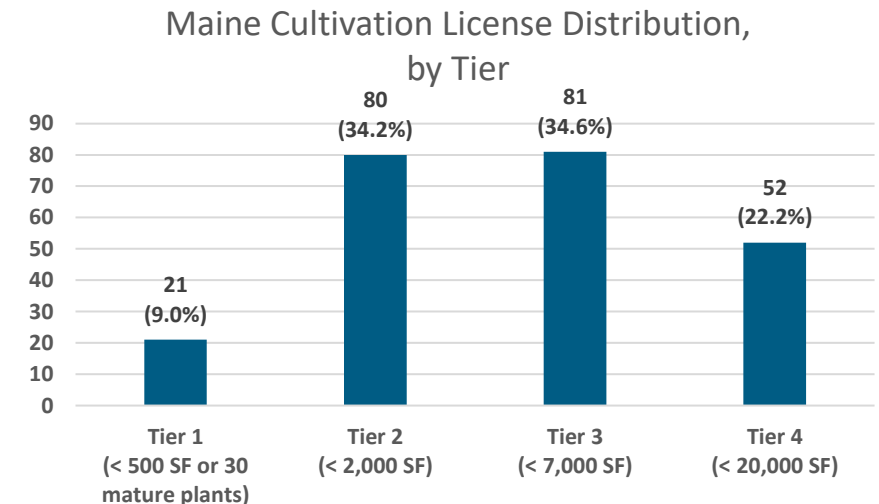
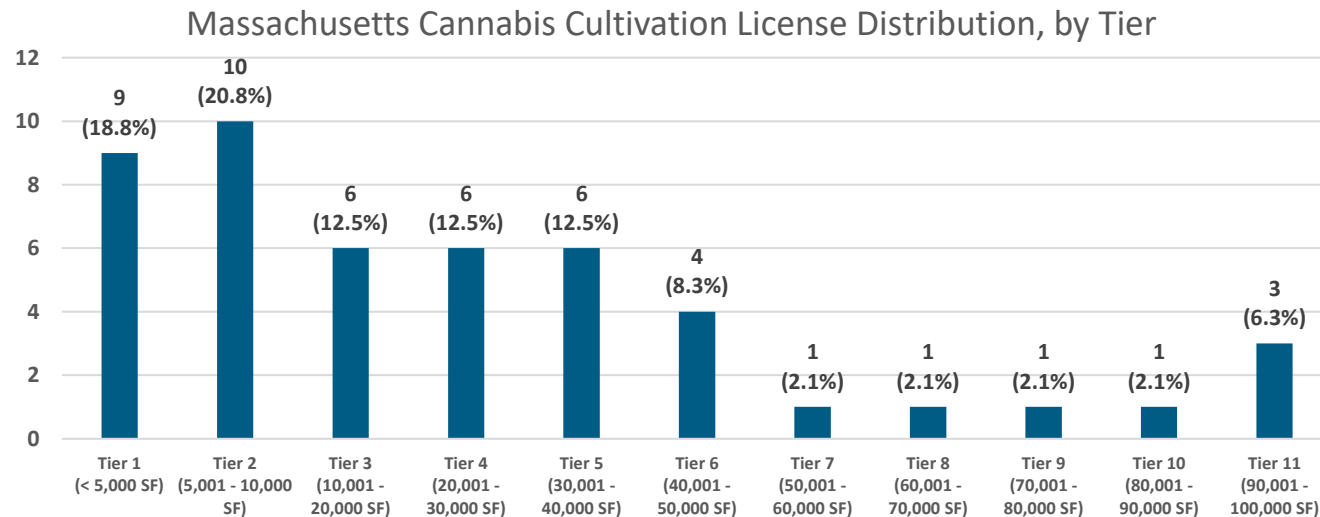
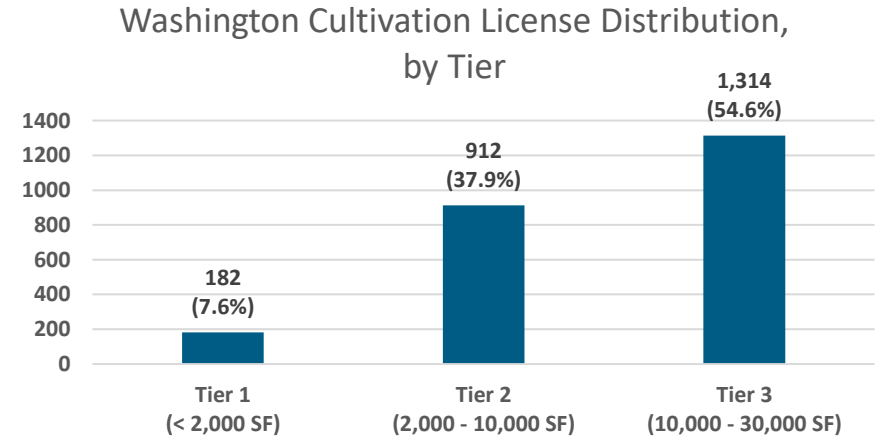
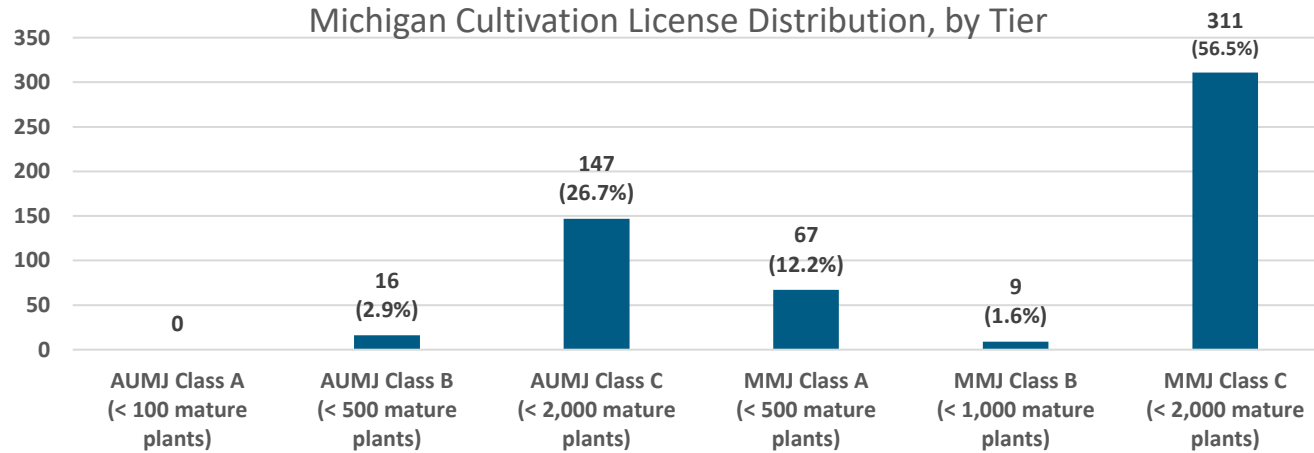
- Many states with regulated cannabis markets publish regular updates on licensees and market statistics.
- The number of cultivation licenses within each state-defined tier is presented on this and the following slides for 5 states with available data.
- These cultivation license distributions by tier illustrate the concentration of operations at the various tier sizes.
- A clear pattern is not necessarily discernible:
  - Colorado and Massachusetts show a larger concentration of smaller licensees in both the medical and adult use markets.
  - Michigan and Washington show a higher concentration of licensees in the largest tiers.
  - Maine licensees are more concentrated within the two mid-sized license tiers.
- These figures illustrate that the defined license tiers and individual cultivator business models likely interact with the overall market in determining how applicants size their operations and how the state determines license issuances.

Colorado Cultivation License Distribution, by Tier



# LICENSE TIER CONSIDERATIONS

## Other States' License Tier Distributions





# RECOMMENDED PRODUCTION ALLOCATIONS

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## Most New Markets Have Struggled With Supply Initially



**Illinois**

“Weed Shortages Are Common After Legalization”  
1/18/2020

[LINK](#)



**Massachusetts**

“Is Massachusetts Growing Enough Pot?”  
7/10/2018

[LINK](#)



**Nevada**

“Marijuana Shortage Prompts Emergency In Nevada”  
7/12/2017

[LINK](#)



**Canada**

“Canada is a tale of two cannabis shortages”  
7/19/2019

[LINK](#)

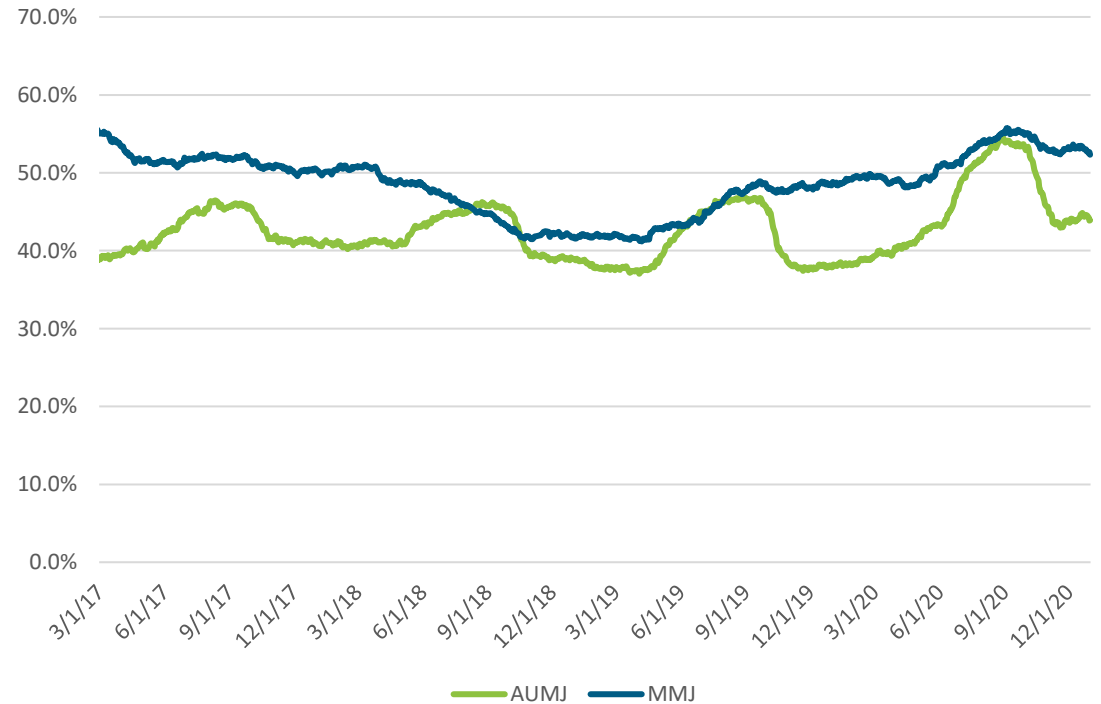
**New Mexico production limits should not handicap the market’s ability to serve its customers, generate economic activity, or collect tax revenues.**

# RECOMMENDED PLANT COUNT ALLOCATIONS

## Cultivation – Plant Allocation Utilization Rates

- Official data from the Colorado cannabis industry indicates that producers have historically utilized 40-60 percent of their allocated plants, as shown in the figure to the right.
- This trend illustrates the importance of incorporating a buffer for plant allocations above what is exactly required to meet estimated demand.
- Allocations based solely on demand estimates do not provide flexibility for producers to evolve with market growth.
- They also do not consider the realities of production risks and losses such as disease, contamination, poor yields, etc.
- The following slide demonstrates the impacts of various allocation buffers on estimated plant counts to provide New Mexico producers with the necessary flexibility and resources to grow and adapt to production risks and market uncertainty.

PLANT COUNT UTILIZATION RATE  
COLORADO, 2017-2020



Source: MPG  
Analysis.

# RECOMMENDED PLANT COUNT ALLOCATIONS

## Production Capacity Buffers and Proposed Tier System

- The table to the right presents total harvested plants, plant allocations and mature plant allocations under the 5-year demand estimate, as well as with a 50% additional production capacity buffers in place as a proxy for the utilization dynamic in mature markets.
- The production capacity buffer also accounts for production risks, such as pests, disease, worker error, systems failure and the uncertainty inherent in matching cannabis production to the demand in a newly established adult use market. Producers generally operate research & development projects for new product development that will require a plant allocation, but may not be for commercial purposes.
- In the table below we combine the results of our demand and plant count analysis to recommend a restructured tier system for New Mexico producers in the table to the right, and compare it to the tier system in the Cannabis Control Division’s Proposed Rules.

Mature Plant Allocation Tiers		
	NM Proposed Tiers	MPG Proposed Tiers
<b>Tier 1</b>	200 - 2,500	200-1,000
<b>Tier 2</b>	2,501 - 3,500	1,001 - 3,000
<b>Tier 3</b>	3,501 - 4,500	3,001 - 6,000
<b>Tier 4</b>	-	6,001 - 10,000

Source: MPG Analysis.

	2026
<b>Total Market Demand (Lbs)</b>	<b>216,645</b>
<hr/>	
Total Harvested Plants Needed (Demanded Quantity Only)	552,358
Total Harvested Plants Needed (50% Buffer over Demanded Quantity)	828,537
<hr/>	
Total Plant Allocations Needed (Demanded Quantity Only)	199,201
Total Plant Allocations Needed (50% Buffer over Demanded Quantity)	298,802
<hr/>	
Total Mature Plant Allocations Needed (Demanded Quantity Only)	86,229
Total Mature Plant Allocations Needed (50% Buffer over Demanded Quantity)	129,343

# LICENSE TIER CONSIDERATIONS

## Recommended New Mexico License Tiers

- We combine the demand estimates and licensing tier analysis in the previous slides to create a new recommended tier system for New Mexico’s regulated cannabis market. This proposed tier system is based on the following assumptions:
  - Total demand for New Mexico cannabis is estimated at 216,645 pounds in the mature market, which translates to a need for 828,537 harvested plants, 298,802 total plant allocations or 129,343 mature plant allocations once a 50 percent production capacity buffer is incorporated.
  - New Mexico will increase the number of cultivation licenses from the current 33 to 50 in order to accommodate the larger market.
  - Most licensees will be in the lower tiers due to capital constraints and the challenging regulatory compliance requirements with fewer very large cultivation operations. Licensees will likely maximize their allocations within their respective tier.
- This tier system approach accounts for the most recent trends in cannabis cultivation trends, market demand, production risks and market uncertainty, and variation in cultivation operation sizes.

### RECOMMENDED CULTIVATION LICENSE TIERS – HARVESTED PLANTS, PLANT ALLOCATIONS, AND MATURE PLANT ALLOCATIONS

*Note:  
Totals in this illustrative example do not exactly match the targets in the previous slide. There will likely be a different number of cannabis cultivators than pictured here.*

*Source:  
MPG Consulting Analysis.*

Total Annual Harvested Plant Tiers	Licensees	Total Harvested Plants	Total Plant Allocation Tiers	Licensees	Total Plant Allocations	Mature Plant Allocation Tiers	Licensees	Mature Plant Allocations
Tier 1 (200 - 8,000)	33	264,000	Tier 1 (200 - 2,500)	33	82,500	Tier 1 (< 1,000)	33	33,000
Tier 2 (8,001 - 16,000)	9	144,000	Tier 2 (2,501 - 7,000)	9	63,000	Tier 2 (1,001 - 3,000)	9	27,000
Tier 3 (16,001 - 40,000)	3	120,000	Tier 3 (7,001 - 14,000)	3	42,000	Tier 3 (3,001 - 6,000)	3	18,000
Tier 4 (40,001 - 60,000)	5	300,000	Tier 4 (14,001 - 23,000)	5	115,000	Tier 4 (6,001 - 10,000)	5	50,000
<b>Total</b>	<b>50</b>	<b>828,000</b>	<b>Total</b>	<b>50</b>	<b>302,500</b>	<b>Total</b>	<b>50</b>	<b>128,000</b>

# RESULTS, OBSERVATIONS AND CONSIDERATIONS

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# RESULTS, OBSERVATIONS & CONSIDERATIONS

**Market size and demand.** Total cannabis market size in New Mexico supported by residents, tourists and expected cross-border activity is estimated to be \$762.5 million or 168,000 pounds, of flower equivalent. This includes total current cannabis demand for adults 21 and older, derived from the National Survey on Drug Use and Health (NSDUH), regardless of supply channel. Market size and demand is projected to grow to about \$786 million and 217,000 pounds in 2026 assuming prevailing trends.

**Cultivation requirements.** New Mexico would require about 155,000 plant allocations by 2022 and about 199,000 plant allocations by 2026, based on 2.7 growing cycles per year and a 0.4 pound yield per plant. This equates to about 67,000 mature plant allocations in 2022 and 86,000 mature plant allocations in 2026. Mature plant estimates are based on New Mexico's statutory definition of "mature plant" and 6.2 flowering cycles per year.

**State production control benchmarking.** On average, each producer licensee across the surveyed states has an estimated 8,478 plant count allocation, with a range of 3,399 to 25,667 plants, based on our canopy-to-plants conversions (excluding New Mexico). The largest average producer license tier in each state allows for up to 31,815 plants, with a range of 4,610 to 161,345 plants.

**Recommended tiers.** Based on our analysis of New Mexico demand and cultivation requirements; and from benchmarking other state systems across the US, MPG recommends a 4-tiered system with lowest tier of 200-2,500 plant allocations (0-1,000 mature plants) and a top tier of 14,000-23,000 plant allocations (6,000-10,000 mature plants).

**Production buffers.** Our demand analysis estimates about 86,000 mature plant allocations necessary to meet annual demand. While this may be a 'sufficient' allocation to meet demand in New Mexico, it lacks buffer or contingency space to account for loss factors and production risks, such as pests, disease, operator error, etc. This system would require each producer to be perfect. In Colorado, producers generally have 50 percent more plants allocated than actually put in use, and New Mexico could adopt a similar posture. In most agricultural or horticultural production scenarios, market and capital factors limit the maximum amount grown by each producer, and not regulatory limits. This allows producers to invest accordingly in their operations.

**Dynamic tier mobility.** New Mexico's tiered production system lacks dynamic features present in other states, such as performance-based tiers that allow for substantial increases in plants if operators meet sales targets. The state should consider allowing full-tier plant increases if sales targets are met over a consistent period. For instance, an operator that sells more than 75% of inventory on a consistent basis, can move up a full tier in plant count. A more substantial increment in plant count will allow for proper forward-looking facility investments.

**Yields, harvests and flowering phases.** The cultivation data contained herein is based on millions of records in the Colorado and Washington regulated markets. The data ranges are clearly presented and all sources for data are clearly documented. If the state of New Mexico is implementing a tightly-prescribed production control system, we recommend the state is very transparent with its sources and the bases for yield and plant lifecycle calculations. For instance, there is clear evidence that cannabis plants yield between 0.26-0.54 lbs. per plant. Full-plant cultivation cycles average 136 days, and flowering phases average 59 days.

# APPENDIX: DETAILED DEMAND METHODOLOGY

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## New Mexico Cannabis Demand Estimation

### Available Data

Several data sources were utilized to estimate the resident cannabis consumption in New Mexico. The primary source of data on cannabis use patterns comes from two well established and widely utilized surveys, the National Survey on Drug Use and Health (NSDUH) and the Behavioral Risk Factor Surveillance System (BRFSS).

The NSDUH collects representative state-level data on New Mexico cannabis use prevalence, as well as estimates of the frequency of use among current cannabis consumers. NSDUH has been administered each year since 2002, allowing for trend and comparative analysis with other states and the U.S.

These sources are combined with state- and county-level population and demographic data from the American Community Survey and the U.S. Census Bureau.

### Demand Estimation

Total demand for New Mexico cannabis includes demand by state residents and visitors. We consider these market segments separately, first estimating the resident consumption, and then the visitor and cross-border demand using the same methodology. The total demand for each group is computed using the following formula:

$$D_r = \sum_{t=1}^7 \frac{days_t \times g_t \times n_t}{1,000,000}$$

Where:

*D<sub>r</sub>* = total consumption by adult residents, measured in metric tons of cannabis

*days<sub>t</sub>* = average number of use days per year for each consumer type 't' (1-365)

*g<sub>t</sub>* = average number of grams consumed per day for each consumer type 't'

*n<sub>t</sub>* = total number of people included in each cannabis consumer classification 't'

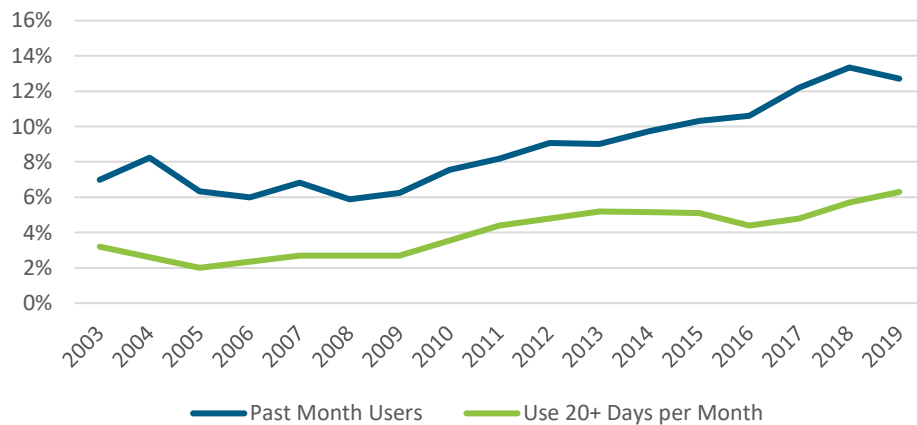
This approach is the most straightforward method to estimate demand since estimates are available (or can be calculated) for each component. The number of cannabis consumers is estimated by combining prevalence data from NSDUH with population data from the ACS. NSDUH also provides estimates of cannabis consumers by type, based on their frequency of consumption, in days. Finally, the average daily consumption quantity for each consumer type is estimated using a combination of recent literature and primary survey data from New Mexico residents.

# TOTAL DEMAND AND MARKET SIZE ESTIMATION

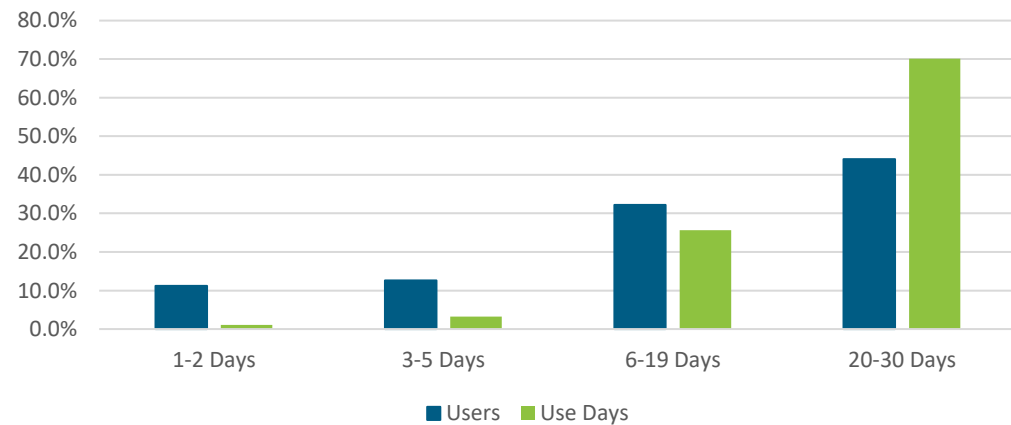
## Key Data and Assumptions

- New Mexico resident demand is based on NSDUH survey data from 2018/19, which is projected to 2022 estimates based on the prevalence growth trends shown on previous slides.
- New Mexico medical patient demand is based on NM Dept. of Health data on sales and prices.
- Texas cross-border demand is based on data on the Texas population and demographics within 200 miles of the NM border, combined with NSDUH data on cannabis use prevalence. The model assumes that 20% of the demand within 200 miles of the NM border will be supplied by the regulated market in New Mexico.
- The average 2022 price per gram of cannabis across all markets is estimated at \$10, based on trends observed in the NM medical market as well as in other states with adult use markets.

New Mexico Cannabis Use Trends  
Adults 18+ (NSDUH)



New Mexico Adult Resident Users and Use Days,  
By Frequency of Use (NSDUH)



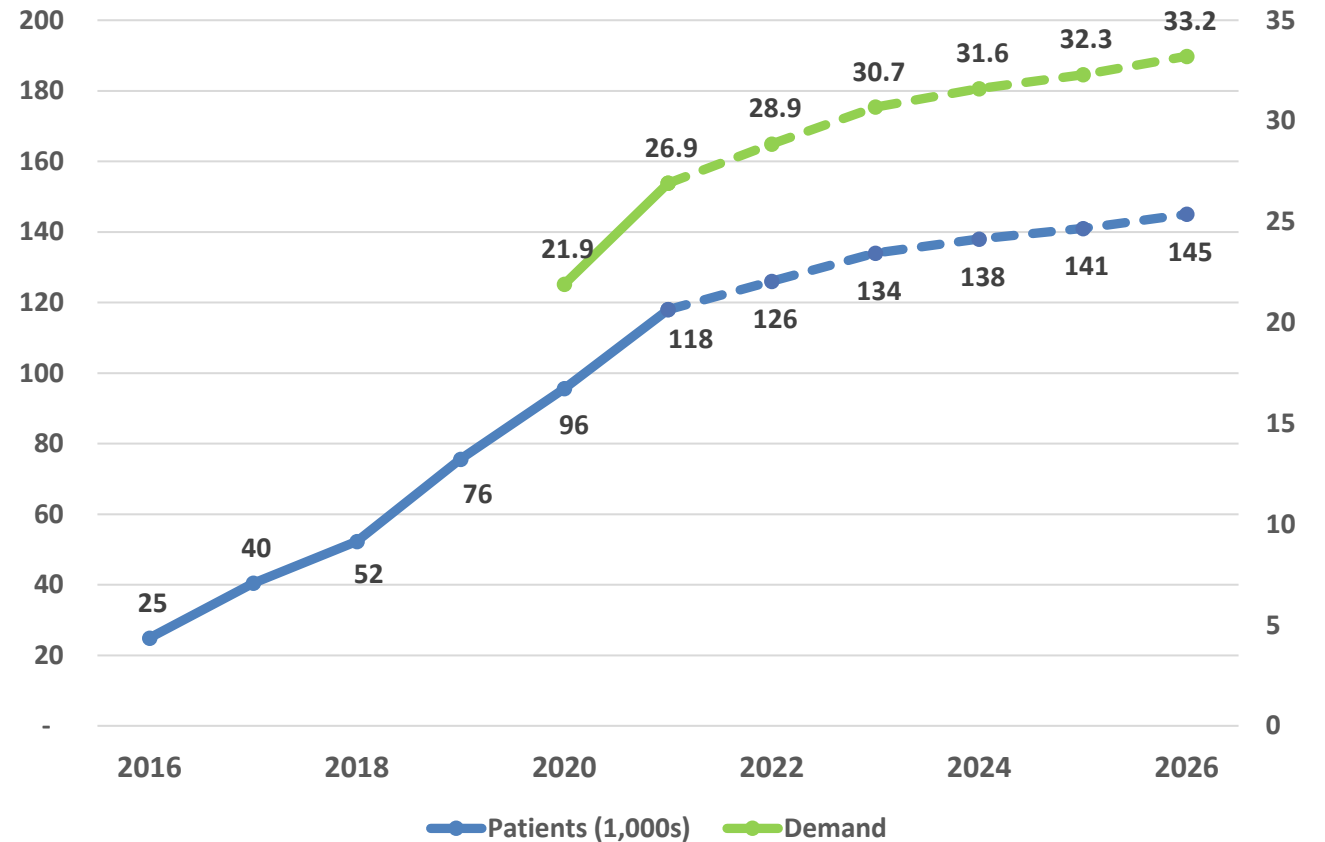
# APPENDIX

## New Mexico Cannabis Demand Estimation

2018/19 Cannabis Use Prevalence Adults 18+ (NSDUH)	
Lifetime	55.8%
Past Year	20.6%
Past Month	14.9%

2018/19 Monthly Frequency of Use Adults 18+ (NSDUH)		
Days	Users	Grams per Day
1-5	34%	0.67
6-10	7%	0.67
11-15	3%	0.67
16-20	9%	1.5
21-25	13%	1.5
26-31	35%	1.5
<b>Weighted Average Grams per Day</b>		<b>1.15</b>

### Registered Patients and Medical Cannabis Demand



For even more detailed data, please contact [info@mpg.consulting](mailto:info@mpg.consulting)

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