



Leafly.

Leafly Cannabis Harvest Report 2021

Meet America's 5th most valuable crop

By David Downs and Bruce Barcott, with Beau Whitney,
and contributors Amelia Williams and Zack Ruskin



Legal cannabis now supports more than 13,042 American farms.

Cannabis is the 5th most valuable crop in the United States. It's time to start treating cannabis farmers like farmers.



America has begun winding down its disastrous, century-long war on marijuana. We're beating swords into plowshares. So what's coming in from the fields?

The answer: America's 5th most valuable crop

America's cannabis harvest is now worth more than the nation's cotton crop.

This first annual Leafly Cannabis Harvest Report tallies farm licenses and production in the 11 states that have legal adult-use stores open and operating. We're doing it because federal prohibition prevents US Department of Agriculture (USDA) economists from doing so.

By refusing to recognize cannabis crops and cannabis farmers, the USDA ignores a fact that exists in plain sight: Cannabis is now a major agricultural commodity that supports thousands of American farmers, farm families, and farm communities.

Cannabis is medically legal in 37 states, but for purposes of this report we focused on operating adult-use states — the 11 states where any adult can walk into a licensed store and buy cannabis — for salience to the general public.

In those 11 adult-use states, cannabis supports 13,042 licensed farms that harvested 2,278 metric tons of marijuana last year.

That amount would fill 57 Olympic swimming pools, or over 11,000 dump trucks stretching for 36 miles — and it's returning \$6,175,000,000 to American farmers every year.

That ranks it as the fifth most valuable crop in the United States. Only corn, soybeans, hay, and wheat returned more wholesale revenue to American farmers in 2020.

The 2021 Leafly Cannabis Harvest Report demonstrates that the economic power of America's fastest-growing industry extends deep into the soil. Legal cannabis is the single most valuable crop in Alaska, Colorado, Massachusetts, Nevada, and Oregon.

In each of the 11 states with adult-use retail stores operating, cannabis ranks no lower than fifth in terms of agricultural crop value — often within two years of the first stores opening. In Alaska, the cannabis crop is worth more than twice as much as all other agricultural products combined.

Comparisons: 2020 wholesale harvest value

Crop	Annual wholesale value
Corn	\$61 billion
Soybeans	\$46 billion
Hay	\$17.3 billion
Wheat	\$9.3 billion
Cannabis	\$6.2 billion
Cotton	\$4.7 billion
Rice	\$3.1 billion
Peanuts	\$1.3 billion

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)



Why count the crop?



The US Department of Agriculture (USDA) tracks annual yields, prices, and estimated values for nearly every commercial crop grown in America. But the USDA does not track legal cannabis due to the plant's status as a Schedule I drug.

That's just weird because in legal adult-use states, cannabis is consistently one of the highest-value crops in the field.

Our goal with the Leafly Harvest Report is to quantify annual cannabis production in operational adult-use states, just like the USDA's Economic Research Service does for all non-cannabis crops. This is the first time anyone's done this, as far as we know.

Working with economists at [Whitney Economics](#), Leafly's investigative team spent months gathering data, analyzing wholesale prices, and parsing classes of cannabis quality. We invested these resources into the Leafly Harvest Report because American voters and policymakers deserve actual data to inform decisions about legalizing, taxing, and regulating one of the country's fastest-growing industries.

We also believe it's time to end the stigma attached to cannabis farming. Far too many state agricultural agencies and policymakers still treat cannabis growers with contempt. Some right-to-farm laws specifically exclude cannabis farming. Most cannabis farmers must — by law — hide their crops from public view, as if the mere sight of a fan leaf might induce intoxication.

These unfair and unnecessary measures are taken against a legal crop that's one of the top agricultural products in every adult-use state. Cannabis farmers are farmers, period.

America's first adult-use legalization measures passed in 2012 in Colorado and Washington state. Today, 19 states and the District of Columbia have legalized the adult use of cannabis. As of late 2021, adults in 11 states can walk into a store and legally purchase cannabis for their own health and enjoyment.

Cannabis doesn't raise itself. Cannabis farmers grow it. And it's time the nation celebrated their success.

Leafly Cannabis Harvest Report 2021

11 open legal state markets

Wholesale crop production and value were calculated based on the most recent 12-month period. In some states that reflects 2020 full-year production, while in other states those values were based on the latest available 12-month data sets. Cultivation license data is from September 2021 in all states.



Legal state	Value of cannabis production in dollars	Estimated legal production in metric tons per year	# of legal cultivation licenses	Cash crop value rank in state
Alaska	\$104M	21	356	#1
Arizona	\$360M	94	143	#2
California	\$1.66B	514	7,548	#5
Colorado	\$1.03B	627	1,245	#1
Illinois	\$322M	66	54	#3
Maine	\$23M	6	223	#4
Massachusetts	\$252M	52	274	#1
Michigan	\$736M	189	487	#3
Nevada	\$433M	111	302	#1
Oregon	\$602M	344	1,319	#1
Washington	\$653M	254	1,091	#4
Totals	\$6.175B	2,278	13,042	

11 open legal state markets

Alaska

The value of cannabis to Alaska's agriculture is so overwhelming we didn't believe it at first. But it's true: Alaska's cannabis crop is twice as valuable as all other agricultural commodities — livestock and crops — combined.

The Alaska Department of Revenue recorded 23,609 pounds of bud/flower wholesaled during the fiscal year that ended in June 2021. Alaska's 356 licensed cannabis farms produced roughly 21 metric tons of marijuana that year, which was worth \$104 million wholesale. All other livestock and crops statewide, combined, brought in about \$40 million. The nearest competing crop was hay, which brought in about \$9 million annually.

Cannabis licenses: 356

Annual cannabis production: 21 metric tons

Value of cannabis production in dollars: \$104M

Cannabis rank among state crops: #1

Crop	Annual wholesale value
1. Cannabis	\$104 million
2. Hay	\$9 million
3. Barley	\$1 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)



HOW ABOUT THAT!

In Alaska, the state's cannabis crop is worth more than twice as much as all other agricultural commodities — combined.



David Downs / Leafly





Anybody, no matter how they identify, can work here. It's really simple stuff: being a human being, and having mutual respect and valuing the people that are working for you and with you.

**Brie Kralick, Director of Cultivation
Hava Gardens, De Beque, CO**



Arizona

Arizona opened its adult-use stores in January 2021. There are now 143 cannabis farming licenses in Arizona and each is tied to a retail store, though they can also wholesale to others. Arizona releases solid monthly production reports, including pounds wholesaled to retailers, allowing Leafly to provide a baseline estimate of annual production. Arizona cannabis growers will produce about 94 metric tons of marijuana this year, worth \$360 million.

Cannabis licenses: 143

Annual cannabis production: 94 metric tons

Value of cannabis production in dollars: \$360M

Cannabis rank among state crops: #2

Crop	Annual wholesale value
1. Hay	\$444 million
2. Cannabis	\$360 million
3. Lettuce	\$322 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)

California

Three years into adult-use sales, California continues to struggle with a lopsided adult-use cannabis industry. There are an estimated seven cannabis farm licenses for every adult-use store, meaning many licensed farmers are finding little demand for their harvest. California cannabis farmers produced a bumper crop in early 2021, leading to falling prices in the summer. The fall outdoor harvest promises to be even bigger, with more price declines expected.

California growers paid \$144 million in cultivation taxes in 2020. That translates into a wholesale harvest of 514 metric tons. With premium flower selling for \$2,000 a pound last year, that yields a wholesale crop value of \$1.66 billion. Those are big numbers, but California's licensed growers actually grew less cannabis than Colorado farmers.

Cannabis licenses: 7,548

Annual cannabis production: 514 metric tons

Value of cannabis production in dollars: \$1.66B

Cannabis rank among state crops: #5

Crop	Annual wholesale value
1. Almonds	\$5.6 billion
2. Grapes	\$4.5 billion
3. Pistachios	\$2.9 billion
4. Strawberries	\$2 billion
5. Cannabis	\$1.66 billion
6. Tomatoes	\$1.19 billion
7. Hay	\$1 billion
8. Walnuts	\$957 million
9. Lettuce	\$930 million
10. Oranges	\$858 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)

Colorado

The world's oldest, most mature adult-use cannabis economy has settled into a production groove. There are 1,245 cannabis farm licenses in Colorado, many of them indoor operations in the Denver area. Outdoor and greenhouse cultivation occurs in the south and east of Colorado.

According to the Colorado Marijuana Enforcement Division's [2020 year-end report](#), Colorado cannabis farmers produced 627 metric tons in 2020. Given the amount of production vs. estimated demand, the legal cannabis industry in Colorado is now satisfying more than 80% of total in-state demand. It took seven years of legal sales to displace the illicit market in Colorado — a huge win for the tax-and-regulate approach, and a timeframe worth noting for officials in other states who might be frustrated that their own legal market hasn't stopped all street sales immediately. It takes time.

Cannabis licenses: 1,245

Annual cannabis production: 627 metric tons

Value of cannabis production in dollars: \$1.03B

Cannabis rank among state crops: #1

Crop	Annual wholesale value
1. Cannabis	\$1.03 billion
2. Hay	\$695 million
3. Corn	\$578 million
4. Potatoes	\$242 million
5. Wheat	\$191 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#), consumption estimates based on ['After the Grand Opening: Assessing Cannabis Supply and Demand in Washington State' \(2019\)](#)



Being loud about your love of cannabis has been somewhat taboo. We want to make sure that we are loudly and proudly waving that flag and continuing to put traditional, legacy, stoner cannabis culture on a pedestal and not on the back burner.

**Jesse Horton, CEO/Cannabis farmer
LOWD, Portland, OR**



David Downs / Leafly

Illinois

Illinois opened its first adult-use stores on January 1, 2020, but the industry remains in its infancy with a relatively small number of licensed stores per capita. Cannabis farmers pay a 7% tax on the gross receipts of their wholesale revenue. In the fiscal year ending June 2021, cultivator tax returns totaled \$22.54 million, which translates into \$322 million in total wholesale revenue. Wholesale premium flower sold for roughly \$3,000 a pound in Illinois last year, translating into an annual harvest of 66 metric tons of cannabis.

Cannabis licenses: 54

Annual cannabis production: 66 metric tons

Value of cannabis production in dollars: \$322M

Cannabis rank among state crops: #3



Any time you're building a microgrid and also building cultivation at the same time, there are always going to be some bumps in the road, but we've gone through all of that stuff and we're humming now.

**Brendan Delaney, Director of Cultivation
Solar Therapeutics, Somerset, MA**



Crop	Annual wholesale value
1. Corn	\$9.3 billion
2. Soybeans	\$7 billion
3. Cannabis	\$322 million
4. Hay	\$221 million
5. Wheat	\$191 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)

Maine

Despite legalizing the adult use of cannabis in late 2016, Maine's former Republican governor stymied the will of the voters for years. The result: Legal sales didn't begin until October 9, 2020. Working with available data, we estimate that 223 licensed cannabis farmers produced 6 metric tons of cannabis in the past 12 months. That's worth \$22.8 million, more than the state's maple syrup producers brought in last year.

Cannabis licenses: 223

Annual cannabis production: 6 metric tons

Value of cannabis production in dollars: \$23M

Cannabis rank among state crops: #4

Crop	Annual wholesale value
1. Potatoes	\$152 million
2. Blueberries	\$29 million
3. Hay	\$26 million
4. Cannabis	\$23 million
5. Maple syrup	\$21 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)



HOW ABOUT THAT!

In Maine, the cannabis crop is worth more than the state's maple syrup production.



Massachusetts

Massachusetts is producing about 67,000 pounds (30.2 metric tons) of premium cannabis flower, which translates to about 114,460 pounds (52 metric tons) of total annual harvest. A retail ounce (there are 16 ounces in a pound) sold for roughly \$375 in 2020, which puts the wholesale value of the 2020 cannabis harvest at \$252 million. That makes it the number one cash crop in Massachusetts. Cannabis brings in more than three times as much money as the state's famous cranberry crop, and it will likely remain the #1 crop in Massachusetts for years to come.

Cannabis licenses: 274

Annual cannabis production: 52 metric tons

Value of cannabis production in dollars: \$252M

Cannabis rank among state crops: #1

Crop	Annual wholesale value
1. Cannabis	\$252 million
2. Cranberries	\$71 million
3. Hay	\$18 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)



HOW ABOUT THAT!

In Massachusetts, the cannabis crop is worth 3 times more than the cranberry crop.



Michigan

Michigan's cannabis harvest has seen steady growth since the opening of adult-use sales in December 2019. In fall 2020, farmers were producing roughly 9,000 pounds (medical and recreational combined) of prime flower every month. By fall 2021 they were consistently sending 24,000 pounds of the best bud into the retail market.

With half the harvest devoted to prime flower, we estimate the state's farmers turned out about 417,000 pounds (189 metric tons) of wholesale cannabis in the past 12 months. That crop is worth roughly \$736 million, making cannabis the third most lucrative cash crop in Michigan.

Cannabis licenses: 487

Annual cannabis production: 189 metric tons

Value of cannabis production in dollars: \$736M

Cannabis rank among state crops: #3

Crop	Annual wholesale value
1. Corn	\$1.4 billion
2. Soybeans	\$1.2 billion
3. Cannabis	\$736 million
4. Hay	\$337 million
5. Apples	\$270 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)

Nevada

In the four years since the state's adult-use cannabis market opened, cannabis has become its number-one cash crop. Nevada's 15% wholesale tax on the "fair market value" of marijuana netted the state an estimated \$65 million for the fiscal year ending in June, which yields a wholesale annual value of \$433 million. That translates into 246,000 pounds of annual production, or 111 metric tons.

Cannabis licenses: 302

Annual cannabis production: 111 metric tons

Value of cannabis production in dollars: \$433M

Cannabis rank among state crops: #1

Crop	Annual wholesale value
1. Cannabis	\$433 million
2. Hay	\$210 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)



Hopefully, we also see movement politically and the Safe Banking Act is passed and cannabis is eventually rescheduled. I'm hopeful the industry will flourish with the good people who have got it to this point, and be open to more small-scale, mom-and-pop style operations seeing success.

**Evan Marder, Director of Cultivation
Fleur, Las Vegas, NV**



David Downs / Leafly

Oregon

Oregon's cannabis crop is, not surprisingly, a monster. There are 1,319 farm licenses, and a 2021 state report estimated annual yield at 758,500 pounds (344 metric tons). After a crushing wholesale crash that sent the price of a pound to \$650 in April 2019, Oregon's market [rebounded](#) to keep the price around \$1,100 for most of 2020. It's hovered around \$1,300 this year, with a recent dip reflecting a big fall harvest. With the market steady at \$1,100, Oregon's 2020 annual cannabis crop was worth \$602 million, making it the most valuable agricultural crop in the state.

Cannabis licenses: 1,319

Annual cannabis production: 344 metric tons

Value of cannabis production in dollars: \$602M

Cannabis rank among state crops: #1

Crop	Annual wholesale value
1. Cannabis	\$602 million
2. Hay	\$569 million
3. Wheat	\$295 million
4. Potatoes	\$216 million
5. Cherries	\$134 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)



This highly intelligent plant is on an expansive trajectory, and in time will honor the legacy farmers and consumers who honor the plant. We're digging into science and research data, and I'm optimistic that this will help demonstrate the benefits of sun-grown cannabis for the plant, the planet, and the people.

**Tina Gordon, Owner/Founder/Grower
Moon Made Farms,
Southern Humboldt County, CA**



Photo courtesy of Rimrock Farms

Washington

According to summer 2021 reports, the smallest farmers have withered on the vine in Washington's competitive, nine-year-old market of over 1,000 farm licensees.

Meanwhile, Washington's cannabis data reporting system remains broken after years of bad fixes and empty promises. Estimating the state's cannabis crop requires reverse engineering the only reliable data, which are retail sales numbers. Based on that, we estimate that Washington cannabis farmers will sell \$653 million in wholesale cannabis this year, from a total harvest of 561,000 pounds (254 metric tons). That marks cannabis as one of Washington's top five most valuable crops.

Cannabis licenses: 1,091

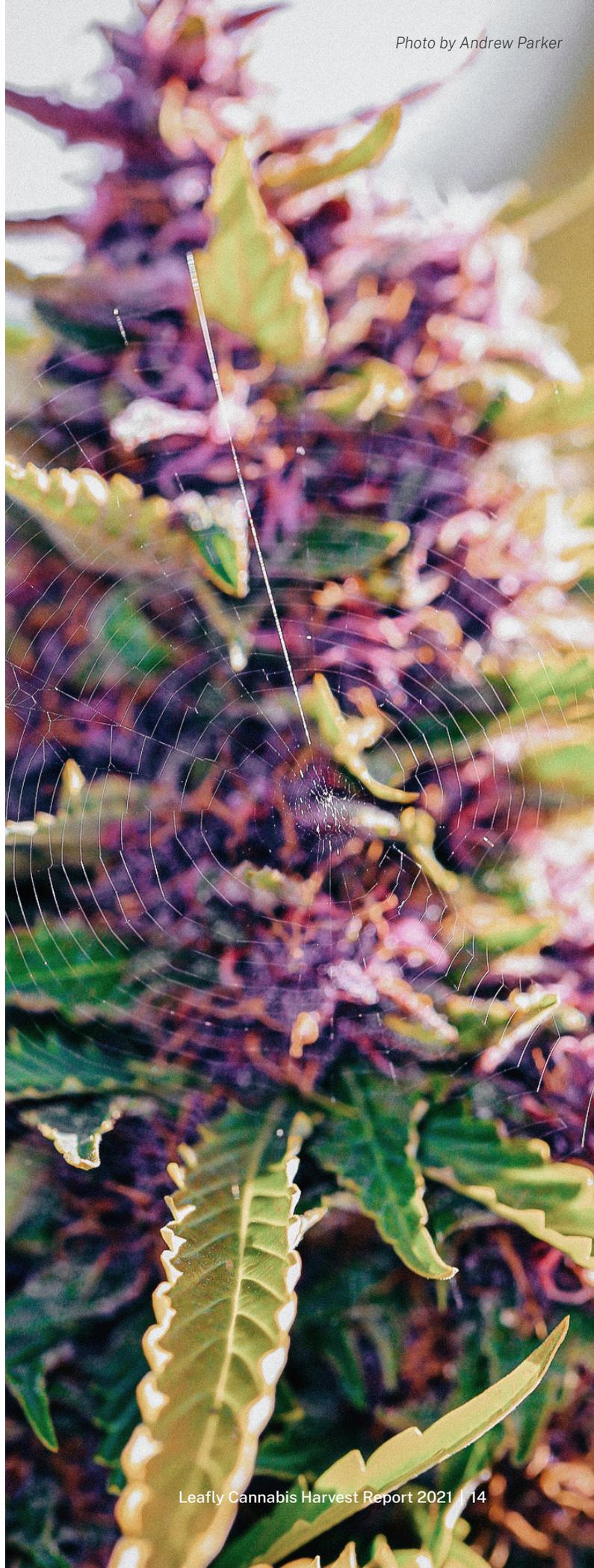
Annual cannabis production: 254 metric tons

Value of cannabis production in dollars: \$653M

Cannabis rank among state crops: #4

Crop	Annual wholesale value
1. Apples	\$2.1 billion
2. Wheat	\$942 million
3. Potatoes	\$753 million
4. Cannabis	\$653 million
5. Hay	\$591 million
6. Cherries	\$562 million

Data sources: Leafly, Whitney Economics, [USDA Economic Research Service](#)



Methodology: How we did this

First, a caveat: This was hard. We're asking questions that many state regulators don't have the answers to — important questions involving billions of dollars of annual economic activity.

What is a license?

We stand behind the number of 13,042 adult-use cannabis indoor and outdoor farming licenses — it's a real figure. But not all cannabis farming licenses (they're usually called "production licenses" by state regulators) represent a simple two-acre farm.

Different adult-use states may issue farming licenses for operations of dramatically different size. In Washington state, for example, marijuana production at state-licensed producers occurs in [three canopy brackets](#): Tier 1 (1,000-2,000 square feet, about the size of a house) up through Tier 3 (10,001-30,000 square feet, about the size of a Walmart).

Each state has different names for farms and rules around ownership. In California, one company may own dozens of farm licenses, a practice known as "stacking." By contrast, Washington state limits each company to a maximum of three cannabis growing licenses.

What does it mean to "produce" cannabis?

In order to offer a fair dollar-for-dollar comparison with other crops, we measured cannabis production and value the same way USDA economists measure crop value: the price it commands when it leaves the farm.

In other words, we measured the wholesale value of cannabis as it passed from the farmer to one of three people: retailers, who purchase premium smokable flower, aka bud; extractors, who buy flower and cannabis trim to extract cannabis oil for edibles, vape cartridges, or concentrates; or wholesalers, who act as middlemen between farmers and retailers or extractors. These transactions are struck at wholesale prices.

Harvested cannabis comes in from the field at "wet weight." It's then dried, trimmed, and cured to achieve its "dry weight." This dry weight is what we're measuring — because that's the form in which it's sold at wholesale. Dry weight is typically 10% to 15% of wet weight.

We looked for total metric tons (one metric ton equals 2,205 pounds) of dried, cured bud wholesaled off adult-use farms for the most recent year-long reporting period. Some states publish production numbers for bud, as well as for trim and "wet material." Others do not. In general, we tried to work with the thing consumers know the most and buy the most of: dried buds, or flower.

How do we compute the value of America's wholesale cannabis crop?

These numbers are in constant motion. Every day, newly licensed farmers start growing and some older ones blink out. Some crops thrive, some crops fail. The wholesale price of weed can vary dramatically from state to state. Legal cannabis can't travel across state lines, so farmers can't ship their crop to an out-of-state bidder offering a higher price. A wholesale pound of premium flower might go for \$1,000 in Colorado. That same pound might fetch \$3,000 in Illinois.

To balance accuracy, fairness, and simplicity, we estimated wholesale crop value by multiplying each legal state's annual dry weight cannabis production by a price per pound.

Additionally, not all parts of the plant command the same price. Quality buds attract the highest price. Low-quality buds, or "smalls," may sell for 70% of that price, and trim can go for 20% of that price.

A dried pound of trimmed cannabis yields roughly 1/2 pound of flower, 1/4 pound of smalls, and 1/4 pound of trim.

So what's a pound worth?

In searching for a formula that balanced accuracy, fairness, and simplicity, we found it helpful to work with a benchmark set by Nevada state regulators.

Nevada taxes cannabis farmers using a pre-set "Fair Market Value at Wholesale" for flower (\$2,398/lb), small bud (\$1,696/lb), flower approved for extraction (\$568), trim approved for extraction (\$546), trim (\$550), wet whole plant (\$297), and immature plants (\$51).

We rounded up and adapted Nevada's numbers to create a per-pound formula. Every pound of harvested, dry cannabis yields:

Flower, 1/2 pound: \$2,400 x 1/2 = \$1,200

Smalls, 1/4 pound: \$1,700 x 1/4 = \$425

Trim, 1/4 pound: \$550 x 1/4 = \$138

Using this benchmark formula, each harvested dry pound of marijuana yields \$1,763 of wholesale crop value.

We then applied that same flower/smalls/trim formula to each state, adjusting for the best known information about a specific state's wholesale prices in the most recent 12-month period for which data is available. In some states we were able to compute totals from September 2020 to September 2021. In other states we used full-year 2020 data, and sometimes we used fiscal year data that ran July 1, 2020, through June 30, 2021.

Photo by CannaPics, courtesy of Redwood Remedies

From harvest to hand



It's time to treat cannabis farmers like farmers



Cannabis is a top cash crop in states where it's legal, but you'd never know it by the shoddy treatment afforded America's cannabis farmers.

None of the 11 legal states included in the Leafly Harvest Report officially list cannabis among their top agricultural commodities. Marijuana is the #1 crop in Alaska, Colorado, Massachusetts, Nevada, and Oregon, but remains completely uncounted and ignored by state agriculture officials.

There's no logical reason for this. The stigma created by 80 years of prohibition and government-funded propaganda has fueled this bias.

Here are a few examples of the barriers faced by America's cannabis farmers.



Federal-level prohibition

Because of federal prohibition, cannabis farmers receive none of the federal aid given every year to non-cannabis farmers.

In 2020, Congress gave \$35 billion in [emergency pandemic aid](#) to American farmers, on top of the \$10 billion already given in usual farm subsidies. Cannabis farmers did not receive any of this assistance.

Additionally, cannabis farmers lack typical business and crop insurance options due to the Controlled Substances Act's effect on the banking industry. Just a handful of carriers offer limited insurance coverage. The industry wrote just \$250 million in policies in 2020, [insurance agents told Reuters in August](#).

Rocco Petrilli, chairman of the National Cannabis Risk Management Association (NCRMA), a trade group of 3,000 cannabis companies, has described the cannabis industry's "overwhelming need" for reasonably priced business insurance. Currently, premiums for cannabis companies run 20% to 30% higher than rates for comparable non-cannabis companies.

Due to the federal Schedule I status of cannabis, farmers face inordinate barriers to the banking system. That makes payroll and tax payment doubly difficult. Small business loan? Not happening. If a cannabis farmer does manage to open the most basic banking account, the fees they're charged are typically multiple orders of magnitude higher than those charged to an average commercial account.

About 677 banks and credit unions serve marijuana businesses. The US Cannabis Council considers the current mostly-cash system a security hazard. Thirty-eight state attorneys general have called upon Congress to pass the SAFE Banking Act to increase safety, tax collections, and oversight.



State discrimination

At the state level, opening a cannabis farm is anything but as simple as putting seeds into soil. It's generally more akin to mixed-use urban commercial real estate development, wherein you need a large pool of money to fund a lobbying team to twist arms and secure local permission to plant. Cannabis farmers face high tax rates and regulatory scrutiny that other farmers generally do not.

Cannabis farmers face background checks, have to install security cameras and keep footage, and must report every gram produced in a cumbersome digital system.

A California annual cannabis farming license fee starts at \$4,820 and goes to \$44,517 per year.

California cannabis cultivation taxes run \$9.65 per ounce, on top of payroll taxes and the rest. By contrast, strawberry farmers pay no cultivation tax, just regular sales and use taxes.

Arizona

Arizona's [Department of Agriculture](#) funds advisory and research councils devoted to leafy greens, citrus, fruit, vegetables, and grains. One council is devoted specifically to iceberg lettuce, but there is no council or research group for cannabis, the state's second most valuable crop.

California

The demonization of legal cannabis farming first started in California, after voters there passed a landmark medical cannabis law in 1996.

Oakland grower Ed Rosenthal became a cause célèbre after federal authorities prosecuted him for growing medical marijuana with local city permission.

Years later, medical marijuana patient Angel Raich fought a legal battle that went all the way to the US Supreme Court. The Court held in *Gonzales v. Raich* (2005) that New Deal-era potato price controls gave federal officials the right to arrest a medical patient for planting a single cannabis plant in their backyard. Arrests for violating the Controlled Substances Act were constitutionally allowed under the Commerce Clause of the US Constitution, the Court held.

California generally does not treat cannabis as a "crop" or cannabis farming as "agriculture." Those legal designations would trigger a swath of farming rights to protect all cannabis growers. Cannabis licensees report that dual local/state licensing means it can take multiple years and multiple millions of dollars to even open a farm, let alone construct a drying room.

Due to banking restrictions, farmers often have to pay cultivation taxes in cash. Paying taxes in cash in California triggers a 10% penalty fee.

The City of Los Angeles — the country's largest cannabis market — is a farm licensing failure. In the five years since statewide voters passed Prop 64, LA has not licensed a single new cannabis farm.

Santa Cruz County might be the only county that treats cannabis like agriculture. That means farmers in designated zones have a by-right permission to plant without any further review.

Just for contrast: In Oklahoma, a medical marijuana state, light-touch rulemaking has resulted in more cannabis farm licenses (8,625) and opportunities than the adult-use

state of California (7,548). Oklahoma has so much cannabis farm competition that lawmakers there are floating the idea of capping farm licensing and production to support farmers and prices — a modern echo of New Deal-era farm programs.

Illinois

Prices will remain high in this new adult-use state due to highly restrictive farm licensing. Illinois recently issued more cultivation licenses, but that only brings the state up to 54 total licensed farmers for a population of nearly 13 million people. That stands in contrast to nearby Michigan, which has licensed roughly 500 cultivators to serve its 10 million residents.

Photo courtesy of Moon Made Farms

New Jersey

Legal cannabis farming? Not in our quaint little farm town, thank you. In rural Hunterdon County, New Jersey, 19 towns have [banned](#) all cannabis farming, as well as processing and retail. This legal exclusion of cannabis farmers comes as Hunterdon County ranks #2 in the state in the amount of acreage [specifically preserved](#) for agriculture. In Salem County, the state's top farmland preservation district, nine towns have banned cannabis farming.

Moreover, Garden State residents have no personal right to grow even a single cannabis plant at home.

Washington state

The Washington State Department of Agriculture does not even mention cannabis anywhere on its [website](#), despite cannabis' position as the state's fourth most valuable crop.

By law, Washington excludes cannabis farming from the [statutory definition](#) of "farming," "agriculture," and "horticulture."

The result is that cannabis farmers are specifically excluded from the protections afforded all other farmers under the state's [Right to Farm Act](#). This law protects farmers from lawsuits claiming that agricultural production acts as a nuisance to neighboring residents.

And because cannabis isn't considered agriculture, cannabis farmers can't receive the state [property and estate tax reductions](#) available for land used for commercial agriculture.

Additionally, many purchases by farmers in Washington are [exempt from state sales tax](#). But not cannabis farmers.



David Downs / Leafly

About the authors



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Report designed by **Sasha Beck**

References

Alaska

Alaska Department of Revenue, [Report of Marijuana Transferred or Sold-Tax Period-6/1/2021-6/30/2021](#). Accessed Sept. 27, 2021.

[USDA/NASS 2020 State Agriculture Report, Alaska](#). Accessed Sept. 2021.

Arizona

Arizona Marijuana Program, [August 2021 Monthly Report](#). Aug. 2021.

[USDA/NASS 2020 State Agriculture Report, Arizona](#). Accessed Sept. 2021.

California

CDFA, [CalCannabis Cultivation Licensing](#). Fall 2021.

CDTFA, [Cannabis Tax Revenues](#). Spring 2021.

CDTFA, [Cannabis Tax Reported Cultivation and Excise Revenue by Fiscal Year](#). Spring 2021.

Roberts, Chris. *Forbes*. "[How much legal cannabis is in California? It's a state secret.](#)" August 31, 2021.

[USDA/NASS 2020 State Agriculture Report, California](#). Accessed Sept. 2021.

Colorado

[Colorado Marijuana Enforcement Division: 2020 Annual Update](#). Oct. 2021.

[Colorado Marijuana Enforcement Division: 2019 Annual Update](#). May 2020.

The Denver Collaborative Approach, [Leading the way in municipal marijuana management](#). 2020.

[USDA/NASS 2020 State Agriculture Report, Colorado](#). Accessed Sept. 2021.

Illinois

IDA, [Compassionate Use of Medical Cannabis Program](#). 2021.

Illinois Revenue, [Monthly Collections Remitted to the State Comptroller](#). 2021.

Kownacki, Maura, IDA Spokesperson, personal communications. Fall 2021.

Maine

Maine DAFS, [Adult Use Marijuana Program 2020 Report](#). Feb. 2021.

Maine DAFS, [Office of Marijuana Policy portal](#). Accessed Fall 2021.

[USDA/NASS 2020 State Agriculture Report, Maine](#). Accessed Sept. 2021.

Massachusetts

MA CCC, [Application and Licenses](#). Accessed Oct. 2021.

MA CCC, [Sales and Product Distribution](#). Accessed Oct. 2021.

[USDA/NASS 2020 State Agriculture Report, Massachusetts](#). Accessed Sept. 2021.

Michigan

Michigan.gov, [MRA 2021 Adult-Use Licensing Reports](#). Sept. 2021.

[USDA/NASS 2020 State Agriculture Report, Michigan](#). Accessed Sept. 2021.

References

Nevada

[NV Cannabis Compliance Board portal](#). Accessed Sept. 2021.
NV Dept. of Taxation. [Fair Market Value at Wholesale of Marijuana](#). 2020-2021.
NV Dept. of Taxation. [Marijuana Tax Revenue Report](#). July 31, 2021.
NV Dept. of Taxation. [Wholesale Cannabis Tax Return — Cultivation Facility](#)
[USDA/NASS 2020 State Agriculture Report, Nevada](#). Accessed Sept. 2021.

Oregon

OLCC. [Recreational Marijuana Supply and Demand Legislative Report](#). April 2021.
OLCC. [Marijuana Business Licenses Approved as of 9/9/2021](#).
[USDA/NASS 2020 State Agriculture Report, Oregon](#). Accessed Sept. 2021.

Washington

Kilmer, Davenport, Smart, Caulkins, and Midgette. [After the Grand Opening: Assessing Cannabis Supply and Demand in Washington State](#). *Rand*. 2019.
[USDA/NASS 2020 State Agriculture Report, Washington](#). Accessed Sept. 2021.
WSLCB. [Annual Report, Fiscal Year 2020](#).
WSLCB. [Cannabis Licensing](#). Accessed Sept. 2021.
WSLCB. [Canopy Report](#). June 2020.
WSLCB. [Tier 1 Expansion report](#). July 2021.

US

Cannabis Benchmarks. [October National Report](#). Oct. 2021.
Cannabis Benchmarks. [US Cannabis Spot Index](#). Oct. 2021.
Caulkins. [Estimated Cost of Production for Legalized Cannabis](#). *Rand*. July 2010.
Caulkins. [Radical technological breakthroughs in drugs and drug markets: The cases of cannabis and fentanyl](#), *International Journal of Drug Policy*. *Int'l Journal of Drug Policy*. Aug. 2021; Vol. 94.
Koh, Adam, Cannabis Benchmarks, interview. Oct. 2021.
Midgette, Davenport, Caulkins, and Kilmer. [What America's Users Spend on Illegal Drugs, 2006–2016](#). *Rand*. 2019.
Summers, Sproul & Quinn. [The greenhouse gas emissions of indoor cannabis production in the United States](#). *Nature Sustainability*. 2021; Vol. 4, 644–650.
USDA. [Crop Values: 2018 Summary](#). April 2019.



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