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Chapter **1**

Taking the Nickel Tour

Cannabis is a multifaceted topic, which is one of the reasons it's so fascinating. You can approach it from many different angles, discussing consumption (both medical and adult use), law (as it applies to individuals and businesses), the science behind it (in terms of both biology and chemistry), how to buy it without getting ripped off, the various ways to consume it, how it's made, and even different ways to make money in and from the industry.

In this chapter, we touch on each of these topics and more to provide you with a broad introduction to the fascinating world of cannabis and refer you to other parts and chapters in the book where you can find more in-depth discussions. Think of this chapter as cannabis orientation day and your roadmap to discovering more about cannabis all rolled into one.

Exploring the Basics of Marijuana Consumption

People have been ingesting marijuana in various forms (mostly by smoking it) for more than 5,000 years. The plant has unique chemical properties that make it attractive for use in certain religious and cultural ceremonies, adult recreational activities, and medicinal regimens (to potentially alleviate symptoms of a wide range of medical conditions).

In this section, we explore some of the potential benefits of cannabis for medical and adult recreational use along with some of the potential drawbacks, so you can begin to develop well-informed opinions and decisions regarding its use.

Considering medical use

Some of the chemical components of cannabis have unique properties that mimic certain chemical messengers found naturally in the body that help to regulate certain bodily functions, such as appetite, digestion, and immune function. (See the later section “Knowing What Makes Cannabis So Special” for details.) As a result, two countries and the majority of states in the U.S. have legalized medical marijuana use for certain medical conditions. Qualifying medical conditions vary from one jurisdiction to another but may include the following:

- » Acute or chronic pain
- » Anxiety and/or stress
- » Arthritis
- » Asthma
- » Epilepsy
- » Gastrointestinal disorders
- » Glaucoma
- » Inflammation
- » Loss of appetite or wasting syndrome
- » Movement disorders (dystonia, Huntington’s disease, Parkinson’s disease, Tourette’s syndrome, and spinocerebellar ataxias)
- » Multiple sclerosis (MS)
- » Nausea and vomiting (particularly when associated with chemotherapy)
- » Opioid withdrawal
- » Palliative care
- » Post-traumatic stress disorder (PTSD)
- » Sleep disorders



REMEMBER

Unfortunately, by classifying marijuana as a Schedule I drug, the U.S. federal government has declared that it has “no currently accepted medical use and a high potential for abuse.” As a result, and because of the lack of research supporting cannabis’ potential health benefits, we need to be careful about how we approach this topic. We can’t say it cures any disease or illness, that it helps to cure a disease or illness, or even that it provides symptomatic relief. All we can say is that it has the potential to alleviate symptoms of certain medical conditions, which means maybe it works and maybe it doesn’t.

A LACK OF RESEARCH

One of the big factors preventing doctors and veterinarians in many states from recommending medical marijuana to patients is the lack of research proving or disproving its effectiveness and risks. The lack of research can be traced to several causes, including

- **Regulatory hassles:** Researchers must navigate through complex regulatory barriers put in place by the Food and Drug Administration (FDA), the Drug Enforcement Administration (DEA), the National Institute on Drug Abuse (NIDA), and state regulatory agencies.
- **Restricted supply of cannabis for research:** NIDA is the only source of cannabis available for research scientists, and until recently, the University of Mississippi had the sole contract to grow it, and the strains it grows have a potency that’s too low for high-quality studies and much lower than current products available in the legal market.
- **Funding limitations:** Federal funding for cannabis research is primarily allocated to study its possible adverse effects and much less so to study its potential therapeutic effects.
- **Challenges with dosing and placebos:** Study participants may not accept any consumption method other than smoking or vaping, which makes dose control in studies especially difficult. Also difficult is finding a suitable placebo for the control group.
- **Research controls:** Tremendous variations in cannabinoid content and potency in different strains as well as consumption methods are difficult to control for researchers using current cannabis consumers as subjects.

Although some challenges are outside the scope of government control, the big reasons for lack of research in this area can be traced back to the fact that cannabis is federally illegal in the U.S. This results in a Catch-22, in which the government denies the potential health benefits of cannabis while preventing the studies necessary to provide any evidence.

The one big exception is at least three clinical studies have shown that low-dose cannabidiol (CBD) is useful in reducing seizures in people who suffer from two rare forms of epilepsy — Lennox–Gastaut syndrome and Dravet syndrome. Proof for alleviating symptoms related to a host of other medical conditions is restricted to either anecdotal evidence or evidence from limited clinical trials.

See the chapters in Part 3 for details about using medical marijuana for yourself and possibly even your pets.

Looking into adult recreational use

THC (short for *tetrahydrocannabinol*) has strong psychoactive properties, meaning it can alter brain function to create changes in perception, mood, consciousness, cognition (thinking and memory), and behavior. Other substances that are psychoactive include caffeine, nicotine, alcohol, ephedrine, cocaine, and a number of pharmaceutical drugs used for treating psychiatric conditions. At low doses, THC tends to create a sense of well-being or euphoria and relaxation, which is largely responsible for making cannabis such an attractive adult recreational drug. At higher doses, it can create anxiety, impaired thinking, and loss of coordination.

When looking at cannabis as an adult recreational drug, it's best compared to alcohol, which also produces intoxicating effects and tends to lower anxiety in the short term. Some argue that cannabis is actually safer than alcohol because cannabis isn't associated with physical addiction and because it may not be as harmful to the body as alcohol. However, cannabis is associated with psychological addiction, and long term use or overconsumption may be associated with long-term adverse side effects, so it is not totally safe. In addition, because it's intoxicating, a consumer should never drive or operate machinery when using cannabis.



WARNING

Use cannabis only legally and responsibly. Follow the same precautions as you would (should) when consuming alcohol recreationally — use it in moderation, and don't drive under the influence.

Acknowledging the potential drawbacks

Cannabis isn't a totally safe miracle drug as some present it to be. Nor is it a highly addictive and dangerous drug as others think. It's not nearly as addictive or potentially dangerous as opioids, for example. Cannabis offers many potential benefits when consumed responsibly. However, it also has some potential drawbacks, including the following:

- » Heavy underage use is associated with impaired thinking, memory, and learning functions. One study from New Zealand conducted in part by Duke

University researchers showed an average loss of 8 IQ points among those who smoked marijuana heavily in their teenage years. (Those who started consuming cannabis as adults didn't show notable declines.)

- » Increased heart rate, which may increase the chances of heart attack in susceptible populations.
- » Lung irritation, coughing, and potential breathing problems if the cannabis is smoked, including problems associated with secondhand smoke.
- » Increased risk of serious accidents, including car accidents caused by those who consume illegally and irresponsibly.
- » Worsening of symptoms in people with schizophrenia, such as paranoia, hallucinations, and disorganized thinking.
- » Problems with childhood development during and after pregnancy in the form of lower birth weight and increased risk of both brain and behavioral problems, including attention deficits.

Check out Chapter 9 for additional details on the possible adverse side effects of cannabis.

Knowing What Makes Cannabis So Special

Mammals, including humans, are equipped with a chemical messenger system called the *endocannabinoid system (ECS)*, which plays a role in regulating appetite, pain, inflammation, immune function, digestion, reproduction, memory, motor learning, stress, and so on. The ECS contains cannabinoid receptors distributed throughout the central and peripheral nervous systems along with *endocannabinoids*, which serve as chemical messengers to enable communication across the system.

The ECS plays a key role in helping the body maintain *homeostasis* — healthy equilibrium. When an imbalance occurs, the body engages the ECS to help correct it. Certain endocannabinoids are dispatched, and they lock into designated cannabinoid receptors, fitting into the receptors like keys in a lock. The receptors then engage the nervous system to take action to correct the imbalance. The two main cannabinoid receptors are CB1 and CB2:

- » **CB1** receptors are located primarily in the brain and central nervous system and, to a lesser extent, in other tissues. They play a role in regulating appetite and pain and in memory and emotional processing.

- » **CB2** receptors are located primarily in the peripheral organs, especially cells associated with the immune system. When activated, they work to reduce inflammation. Because many chronic conditions, including pain, are associated with inflammation, many of the potential health benefits of cannabis are thought to be linked to the CB2 receptor.

Cannabis contains *phytocannabinoids* — a type of exogenous (as opposed to endogenous) cannabinoid — along with *terpenes* — aromatic chemical compounds commonly found in plants and essential oils made from plants. Here's a list of the chemical compounds in cannabis most strongly associated with its effects:

- » **Tetrahydrocannabinol (THC)** is the psychoactive chemical compound in cannabis that creates the high. It affects thinking, memory, pleasure, physical movement, concentration, coordination, and sensory and time perception.
- » **Cannabidiol (CBD)** is mostly associated with cannabis' potential health benefits. CBD is often used by patients seeking relief from pain, inflammation, anxiety, and seizures. It's not psychoactive, so it won't make you feel intoxicated. In fact, it may help to counteract the psychoactive properties of THC. CBD can also be extracted from hemp, and in this form, it's federally legal; hence, hemp-derived CBD products are generally more available across the U.S.
- » **9-tetrahydrocannabinol acid (THCa)** is the precursor to THC that doesn't have psychoactive properties, so it won't make you high. When cannabis is heated to above 220 degrees Fahrenheit, THCa is converted into THC through a process called *decarboxylation*. THCa may help to stimulate appetite, reduce nausea and vomiting, prevent or reduce inflammation, inhibit prostate growth, and slow the progression of certain neurodegenerative diseases, such as Parkinson's disease.
- » **Tetrahydrocannabivarin (THCv)** is similar to THC and does have some psychoactive properties in high doses, but it has some unique effects that differ from those of THC. It is an appetite suppressant, stimulates bone growth, and may help with diabetes, Alzheimer's, and panic attacks in PTSD. It needs to be heated higher than THC to about 428°F when vaporizing.
- » **Cannabigerol (CBG)** is a non-psychoactive cannabinoid. It has analgesic, muscle relaxant, anti-erythemal (reduces redness in skin), antifungal, anti-depressant, anti-proliferative, anti-psoriatic, and anti-bacterial properties. As an antibacterial, it can be a powerful weapon against the methicillin-resistant *Staphylococcus aureus* (MRSA) virus.
- » **Cannabinol (CBN)** is a mildly psychoactive cannabinoid that comes from the degradation of THC after an extended period of time due to exposure to oxygen and heat. CBN has analgesic, antibacterial, anti-inflammatory, anti-insomnia, antiemetic, appetite stimulant, and bone stimulant properties.

It's also effective in treating burns. CBN is only 10 percent as psychoactive as THC, but it can produce a very mild high.

- » **Terpenes** are aromatic chemical compounds in plants that give them their unique aroma and flavor. They may also work synergistically with cannabinoids and other terpenes to enhance the overall effect of the cannabis — a phenomenon commonly referred to as the “entourage effect.”



REMEMBER

All cannabis products you purchase at a dispensary are labeled with concentrations or amounts of the various active ingredients, which usually includes amounts and/or percentages of THC and CBD. The label may also include a terpene profile or other ingredients. See Chapter 2 for more about cannabinoid and terpene chemistry.

Recognizing the Diversity of Cannabis Strains

Not all cannabis plants are the same. They vary in structure, cannabinoid and terpene content, and the conditions they require for optimal growth. However, the diversity of strains can all be traced back to one or more of the following strains:

- » **Indica:** Indicas are short, bushy plants that reach a maximum height of 10 feet and have rounder leaves (than sativas). They flower relatively quickly and are sensitive to changes in light. Indicas have a higher concentration of CBD-to-THC than sativas, so they produce a more relaxed effect and are more likely to make you drowsy. The high CBD content also makes indicas more attractive for their potential medicinal properties.
- » **Sativa:** Sativas are taller and less bushy than indicas and can reach a maximum height of about 19 feet. Their leaves are more slender. Sativas tend to have a higher concentration of THC-to-CBD, which tends to create a more active, energetic, and creative high.
- » **Ruderalis:** Ruderalis plants are very short and bushy, reaching a maximum height of about two feet. They have a shorter growing season and are auto-flowering instead of photoperiod plants. While *photoperiod* plants require about 12 hours of total darkness over several weeks to form buds, *auto-flowering* plants flower after a certain amount of time regardless of the amount of light to which they're exposed. Ruderalis plants aren't nearly as psychoactive as indicas and sativas, so you'll rarely see them on product labels, but you will see them on labels when you're shopping for seeds to plant. A ruderalis is commonly cross-bred with an indica and a sativa (or an existing hybrid) to make the latter plants auto-flowering.



Sativas and indicas are cross-bred to create many of the popular hybrids, such as Blue Dream, Pineapple Express, and Lemon Kush. See Chapter 2 for more about the different strains.

Buying Cannabis

Buying cannabis has never been easier or less risky, at least in places where it's legal. You enter a cannabis dispensary, show your ID to prove you're of age and show your medical marijuana card (when applicable), and consult with a sales associate (sometimes referred to as a *budtender*) to find the products that meet your needs and desires. The only big difference from other retail purchases is that when you're buying cannabis, you usually have to pay cash. Of course, the process is somewhat more involved, which is why we devoted an entire chapter to choosing and visiting a cannabis dispensary (Chapter 5).

In this section, we bring you up to speed on how to buy cannabis in order to reinforce the rationale behind buying legally and steer you clear of common scams.

Knowing where and where not to get it

One of the biggest benefits of marijuana legalization is the accompanying regulation that's put in place to protect consumers. When you buy from a legal, reputable dispensary or other retailer, you're benefiting from those protections. Some of the value delivered by the dispensary or retailer is quality assurance. All products are tested and clearly labeled to show the ingredients and potencies along with the levels of any contaminants. You can purchase products with the assurance that you're getting what you paid for.

If you choose to buy from a friend or from a black market seller, which we highly discourage, you increase your exposure to risks, including the following:

- » **Getting robbed or ripped off:** A thief may either steal your money outright or sell you a poor quality product that's not worth the money.
- » **Buying and consuming a potentially dangerous product:** You may be sold something other than cannabis, something laced with a dangerous substance, or something that inadvertently contains high levels of pesticides, mold, fungi, solvents, or other harmful contaminants.
- » **Not knowing the potency of the product:** Because black market sellers don't lab test their products and label them, you may have little to no idea how potent it is, what the CBD-to-THC ratio is, or what dose to take.

» **Supporting crime:** By buying on the black market, you're supporting crime, which increases safety risks not only for you but also for others in your community.

Because the seller plays such a key role in quality assurance, your choice of where to buy may be even more important than your choice of what to buy. Buy from a medical marijuana or adult recreational dispensary and not from a black market seller.



WARNING

Placing an order online or over the phone for pickup or delivery is fine, but only if you're ordering from a licensed and reputable retailer with whom you've already established a relationship. Otherwise, you're exposing yourself to a significant risk of getting ripped off or passing your credit card information to someone who'll use it for his personal spending spree.

Understanding what you're buying

Although the sales associate at your chosen cannabis dispensary can be your greatest ally in understanding what you're buying, you still need to be able to read and understand product labels and, if you're buying bud/flower, be able to judge its quality by looking at it and smelling it.

The information printed on product labels for flower, edibles, vape oils, tinctures, and other cannabis products is very useful for understanding what you're buying and for comparison shopping. Product labels are usually required to contain the following details:

- » **Universal THC logo:** If the product contains more than 0.03% THC, it needs to display the universal THC logo.
- » **Cannabinoid content:** For bud/flower, the label may indicate the percentages or ratios of CBD, THC, THCa, and other cannabinoids. In processed products, such as edibles and tinctures, cannabinoid content may be presented in milligrams (mg) for the entire package and broken down by serving.
- » **Strain(s):** The strain(s) of the bud/flower or the plants used to create the product.
- » **Organic:** If the product is organic, the label usually has some indication of that fact.
- » **Terpene content:** Percentages or milligrams of the various terpenes.
- » **Test results:** Some indication that the product doesn't contain harmful levels of pesticides, molds, fungi, solvents, or other contaminants.
- » **Expiration, sell-by, or best-used-by date:** The date on which the freshness of the product can't be guaranteed.

Additionally, you can usually tell the quality of flower by looking at it and smelling it. It should be colorful, mostly green, and have a pleasantly pungent odor. If it looks brown and dry, smells moldy or like wet hay, or it has little to no aroma, don't buy it. For additional guidance on buying quality cannabis, check out Chapters 8 and 19.



REMEMBER

Hemp-derived CBD products are widely available, but they contain no more than 0.03 percent of THC. If you buy a hemp-derived CBD product expecting some sort of high, you're going to be very disappointed. However, these products should have similar medicinal properties to the CBD in cannabis.

Avoiding rip-offs

Cannabis rip-offs generally fall into two categories:

- » **Investment schemes:** The promise of big returns in a short period of time by investing in cannabis businesses makes eager investors susceptible to investment scams.
- » **Illegal sales:** These are most commonly online sales from sellers who promise to ship product across state lines (a federal offense) and who never have the intention of doing so. Illegal sales also include black-market sales, which increase exposure to several risks, as explained in the earlier section "Knowing where and where not to get it."



REMEMBER

To avoid stock market scams, perform your due diligence in researching any cannabis company or fund carefully before investing in it. If you don't understand the industry, the company's management, and its financials, don't invest in it. To avoid illegal sales scams, simply shop for your cannabis at a legal, reputable dispensary or other licensed retail outlet.

Exploring Different Consumption Methods

Traditionally, consumers smoked cannabis in a pipe, a bong, or rolled as a joint. Edibles, primarily brownies or cookies, provided another common method. However, the legalization of cannabis, along with new technologies such as vaping devices, have given rise to a plethora of new consumption methods. In this section, we briefly describe your options. (See Chapter 6 for details along with instructions.)

Smoking or vaping

The two most common methods of consuming cannabis are smoking and vaping. With smoking, you burn (combust) the cannabis and inhale the smoke. With

vaping, a device heats the plant matter or (usually) a concentrate such as oil to a point at which it vaporizes, and you inhale the vapor. The benefits of both methods are fast onset and intensity of the effect. Some consumers claim that smoke is more aromatic and flavorful and delivers longer-lasting effects, but vaping offers a few advantages:

- » **More efficient:** Vaping releases a higher percentage of THC from the plant than does combustion.
- » **More discreet:** People can't tell whether you're vaping cannabis or nicotine oil, and you don't have the lingering odors that result from smoking cannabis.
- » **Easier to do:** All you do is press a button and inhale. However, you do need to charge the battery, and if you're vaping plant matter (as opposed to oil), you need to load the chamber and clean it after each use.
- » **Probably healthier:** Vapor doesn't contain the tar and other carcinogens produced by burning plant matter. We're not saying vapor is healthy, only that it's probably not as unhealthy as smoke.

Edibles

Edibles include chocolates, gummies, baked goods, and beverages infused with cannabis. They provide the most discreet means for consuming cannabis, and they enable you to enjoy two or more of your favorite indulgences at the same time.



WARNING

Don't consume too much too quickly. You may not begin to feel the effects for up to two hours, so start low and go slow until you get a feel for how a certain dose affects you.



REMEMBER

Eating raw cannabis plant matter won't produce the desired effects. Decarboxylation (usually through heating the cannabis) is required to convert the THCa into the THC that makes you high.

Tinctures

A *tincture* is a concentrated herbal extract. You commonly consume tinctures by placing a few drops under your tongue, holding them there a few seconds, and then swallowing. You can also add tinctures to your favorite foods, beverages, or lotions (for topical application). Cannabis tinctures take effect fairly quickly; the speed of onset is second only to smoking or vaping.



TIP

Tinctures are great for avoiding overconsumption with edibles. Because tinctures take effect much more quickly than edibles, you can use a tincture to figure out how many milligrams (mg) of THC you need to take to feel the desired effects. Then you'll know the maximum amount of THC to consume when you're using edibles.

Topical or transdermal applications

Topicals are cannabis-infused lotions, creams, oils, and balms that are applied to the skin to relieve pain and inflammation. They don't reach the bloodstream, so they don't deliver the intoxicating effects of other consumption methods. However, transdermal patches applied to the skin, do deliver cannabinoids to the bloodstream. While topicals are generally used to relieve localized pain and inflammation, transdermal patches are the better choice for more systemic relief.

Getting Up to Speed on Cannabis Laws

As of the writing of this book, cannabis is federally illegal in the U.S., but legal throughout Canada and Uruguay and in certain states in the U.S. In states where cannabis is legal, it may be legal for medical use only or for both medical and adult recreational use. To find out where cannabis is legal in the U.S. and where it's not, check out the map at thecannabisindustry.org/ncia-news-resources/state-by-state-policies.

Cannabis laws vary by state and even within the states where it's legal, because various jurisdictions within the state can set their own laws and even prohibit dispensaries from operating in their jurisdiction. While laws vary, the laws that apply to consumers are typically broken down into the following categories:

- » **Purchase:** Laws that pertain to purchasing cannabis specify a minimum age, identification and age verification, purchase limits, and purchase locations in addition to certain rules governing the sales transaction; for example, in some jurisdictions, customers are prohibited from pooling their money to buy products.
- » **Possession:** Like purchase laws, possession laws specify a minimum age, identification and age verification, and possession limits. For example, in Colorado, if you're 21 years or older, can you legally possess one ounce (about 28 grams) of THC in flower form.
- » **Consumption:** Driving under the influence of cannabis is illegal everywhere, and public consumption is generally illegal. You're not allowed to simply light



WARNING

up when you're walking down the street. Some areas have legal bring-your-own-cannabis clubs or lounges and other establishments, such as cannabis-friendly motels. One key to steering clear of trouble is to be discreet — edibles and vape pens may be your best options when consuming away from the privacy of your own home.

Don't consume on federal property, such as a national park.

- » **Transportation:** Cannabis laws contain rules similar to open container laws for alcohol. You're not allowed to have cannabis in the passenger area of a vehicle if it is in an open container (manufacturer's seal is broken) or if there's evidence of consumption. Also, you're prohibited from transporting or shipping product over state lines, even across state lines that separate two legal states, because it constitutes drug trafficking, which is a federal offense.
- » **Cultivation:** These laws typically stipulate that you must be a certain age to grow marijuana, that you're allowed to grow only a certain number of plants, that only a certain number of those plants can be in the flower stage, and that plants must be in an enclosed, private, and locked space on private property you own.

Many more rules and regulations govern commercial operations, including growers, manufacturers, sellers, and delivery services. See Chapter 3 for more detailed coverage of cannabis laws and advice for staying out of legal trouble.

Being a Safe and Responsible User

Being a safe, responsible cannabis consumer is important for two reasons: First, it ensures your health and safety and that of others. Second, irresponsible and inconsiderate use runs the risk of spoiling legalization for everyone. To be a safe and responsible cannabis consumer, follow these guidelines:

- » **Protect minors and pets.** Keep your cannabis out of the reach of children and teenagers, along with your pets.
- » **Don't drive high.** Stay at home or designate a driver.
- » **Be discreet and considerate.** Smoking or vaping in the company of others may or may not be appropriate or welcome. Consider the setting, the people, and the situation.
- » **Don't overconsume.** Excessive long-term consumption isn't healthy and may negatively affect various aspects of your life.
- » **Don't mix cannabis and alcohol.** These two substances can intensify the intoxicating effects of one another in unexpected ways.

- » **Be careful with edibles.** Until you know the dose required to produce the desired effects, start with a low dose and wait at least two hours before taking any more.

See Chapter 7 for additional guidance on how to consume safely and responsibly.

Grasping the Basics of Cannabis Production

Take a stroll through a cannabis dispensary and you'll be amazed at the diversity of products — bud/flower, pre-filled vape pens, concentrates, tinctures, lotions, sprays, gummies, chocolates, and more. If you're wondering how all this stuff gets made or you want to grow your own bud or make your own cannabis infused products, you've come to the right place. Here, we cover the bare-boned basics. Turn to Part 4 for detailed coverage.

Growing cannabis

In most areas where cannabis is legal, it's legal to grow, too, assuming you follow the rules and regulations and your grow operation doesn't offend the neighbors. Cannabis is as easy to grow as a tomato plant. Assuming you give it all the nutrients it needs — rich soil, clean water, and plenty of sunshine and fresh air — you can expect to have a bountiful crop ready to harvest in six to ten weeks (typically eight weeks).

We devoted an entire (long) chapter (Chapter 11) to growing cannabis, which covers indoor and outdoor grows, lighting, ventilation, fertilizers, and much more, but here are the key takeaways:

- » Start with good quality soil that absorbs moisture but drains well, too.
- » Provide enough water but not too much.
- » If you're growing in containers, make sure the container is large enough to accommodate the roots of the plant you're growing. Some cannabis strains are much larger than others, and a pot that's too small will stunt the plant's growth or even kill it.
- » Start with feminized seeds, which are much more likely to grow into female plants, which eventually develop the buds you want to harvest. Seeds sold at dispensaries are feminized.

- » A single male plant can pollinate all the female plants in your grow room and ruin your entire crop, so identify each plant's sex as early as possible and isolate the males. (See Chapter 2 for guidance on telling the difference between male and female plants.)
- » Plants can be photoperiod or auto-flowering. Photoperiod plants are sensitive to changes in light and require at least 12 hours of darkness daily to enter the flowering stage. Auto-flowering plants develop flowers on schedule even if they get less than 12 hours of darkness. With photoperiod plants, you need to be much more diligent about ensuring that they're getting at least 12 hours of darkness starting about halfway through the grow cycle. Seed package labeling indicates whether the seeds are for auto-flowering plants.
- » During the vegetative stage of the growth cycle (the first four to eight weeks) feed the plants a fertilizer that's higher in nitrogen. When the plant is nearly half its adult size, switch to a fertilizer that's lower in nitrogen and higher in potassium and phosphorous. (If you're starting with soil that has fertilizer mixed in, don't fertilize for the first four or five weeks.)
- » When your plant starts getting bushy, start pruning it to remove growth near the center stalk and lower branches that aren't receiving much growth. The goals are to redirect the plant's energy to the buds/flowers and open the plant up to light and fresh air.

Harvesting and curing cannabis

When the pistils (hair-like structures) on about half the buds on your plant turn orange or red, the plant is ready to harvest. You can cut down the entire plant or cut off all the branches that contain buds. Remove the fan leaves, and hang the branches (with flowers attached) upside down in a dark room with a temperature of 60–70 degrees Fahrenheit, relative humidity between 45 and 55 percent, and a small fan to gently circulate the air. Be sure to leave space between the branches to prevent mold and mildew.

This initial drying period usually takes a week or two. When the flowers are a little crunchy on the outside but feel a little spongy (not squishy wet) and the smaller branches snap when bent rather than folding over, the flowers are ready to be cured.

To cure the flowers, remove them from the branches and trim any leaves that stick out of the flowers. Place the trimmed flowers in glass jars (loosely packed), seal the jars, and place them in a cool, dry place. During the first week, open the jars once a day for a few minutes to air out the flowers. Over the next four to seven weeks, open the jars for a few minutes once per week.

When your cannabis is fully cured, it's suitable for smoking or creating concentrates and other products.



REMEMBER

Drying and curing isn't necessary if you're making certain concentrates. As explained in Chapter 13, you can use a couple of different extraction methods to collect the trichomes from the flower and use it to create hash and other concentrates. (Trichomes are sticky crystal structures on the outside of the flowers that contain the highest concentrations of cannabinoids and terpenes.)

Creating cannabis, extracts, concentrates and infused products

From cannabis flower, you get extracts, concentrates, and infused products:

- » **Extracts** are oils of various consistency that contain high concentrations of cannabinoids and terpenes. They're used to vape, dab, and create other marijuana infused products (MIPs). Extracts are typically made in special facilities using pressure, heat, and potentially dangerous solvents and processes.
- » **Concentrates** are made through various mechanical processes with or without the use of heat or cold to collect the trichomes from the flower. The goal is to remove as much of the inert plant matter as possible, leaving behind the cannabinoids and terpenes. Common concentrates are hashish (hash) and rosin.
- » **Marijuana infused products (MIPs)** include edibles, tinctures, topicals, and other products that contain flower or an extract or concentrate. Making an infused product is usually a process of adding flower or an extract or concentrate to an existing recipe.



REMEMBER

Decarboxylation is required to convert the non-psychoactive THCa to the psychoactive THC, so if you're making your own infused products, you need to make sure this process takes place. If you're creating a baked good, such as brownies, decarboxylation occurs during the baking process. However, if the product doesn't require heat, you need to bake the cannabis first. See Chapter 13 for details.

Making Money in the Cannabis Industry

According to a 2018 article in *Forbes* magazine, spending on legal cannabis worldwide is expected to reach \$57 billion by 2027. You can claim your piece of this potentially lucrative cannabis pie in various ways — by getting a job in the industry, starting your own cannabis business or an ancillary business, or investing in the industry. In this section, we introduce these options, but first, we look at some of the challenges that may make you think twice about seeking your fortune in cannabis.

Recognizing the challenges

Although \$57 billion is certainly a lot of money, it's not necessarily easy money, especially in the U.S. where cannabis is still federally illegal. However, even in areas where it's legal, governments tax it heavily and have rules and regulations in place that make compliance difficult and costly. In addition, because cannabis is a drug, and because it's primarily a cash business (in the U.S.), it's very attractive to criminals. Everyone wants a piece of their cannabis pie, and some people aren't afraid to simply take it.

Due to these challenges, you need to be ready to manage your expectations by reminding yourself of the following:

- » Due to the high costs of starting and running a cannabis business, profit margins can be slim. A dispensary license application alone can cost more than \$60,000, and U.S. federal tax laws prohibit cannabis businesses from deducting a host of business expenses.
- » Because profit margins are low, don't expect wages to be any higher in the cannabis industry than they are in other industries. They're likely to be a little lower in most cases.
- » Cannabis stocks can go from boom to bust in a hurry, and cannabis investment scams are rampant. Currently, cannabis investing is highly speculative. You can certainly earn a handsome return, but just as easily and quickly lose your shirt.

Getting a job in the industry

The easiest way to begin your foray into the cannabis industry is to get a job in the industry. Given the growth of the industry, a variety of positions need to be filled, including the following:

- » Accountant
- » Buyer
- » Communications director
- » Compliance manager
- » Courier/delivery driver
- » Cultivation technician
- » Cure associate
- » Dispensary manager
- » Dispensary receptionist or cashier
- » Edibles chef
- » Extractor
- » Facilities manager
- » Grower or grow master (head grower)
- » Human resources (HR) managers

- »» Joint roller
- »» Laboratory worker
- »» Marketing managers or team members
- »» Nutrient chemist
- »» Packager
- »» Public affairs administrator
- »» Quality assurance manager
- »» Sales associate (budtender)
- »» Sales representative
- »» Security personnel
- »» Technology director
- »» Trainers
- »» Trimmer



TIP

Before you start looking for a job in the industry, consider getting a state badge. A cannabis company may deem you a more attractive candidate if you already have your documentation. If a company hires someone and that person's application for a badge is denied, they need to start their candidate search all over again.

Openings are posted on traditional job sites, such as indeed.com. Some job sites, such as www.vangsters.com, are dedicated to the cannabis industry. Also consider visiting the websites of cannabis companies you're interested in to see whether any job openings are posted on those sites.

Starting your own cannabis business

If you're considering starting your own cannabis business, you have numerous opportunities to consider in the various industry segments:

- »» **Grow:** Grow operations cultivate, harvest, and cure cannabis to supply it to dispensaries/retail locations and to MIPs.
- »» **MIP:** MIPs obtain cannabis from grow operations and use it to create concentrates, extracts, edibles, and other marijuana infused products supplied to dispensaries/retail locations. MIPs may be broken down further into extraction operations and industrial kitchen operations, both of which can be a distinct business.
- »» **Dispensary/retail:** Dispensaries (and perhaps other retailers) obtain products from growers and/or MIPs and sell them to consumers.

Vertically-integrated cannabis businesses are those that contain all three operations — grow, MIP, and dispensary/retail.



REMEMBER

Many failed cannabis businesses have been started by very smart people who are passionate about the plant but lacking in the knowledge and skills to start and run a business and unprepared for the costs and regulatory pressures. Don't start a business until you have all the pieces in place to give yourself a reasonable chance of success. This industry can be brutal.

Exploring ancillary business

Ancillary businesses are those that operate on the periphery of the cannabis industry and supply it with goods and services. These businesses can profit from cannabis without the risks and hassles, because they can also serve businesses and individuals outside the cannabis industry. Ancillary businesses include the following:

- » Fertilizer manufacturers
- » Nurseries
- » Manufacturers and sellers of grow lights
- » Heating, ventilation, and air conditioning (HVAC) companies
- » Breweries that sell their CO₂ to grow facilities
- » Packaging and labeling services
- » Security services and manufactures and sellers of security equipment
- » Technology, and software companies
- » Marketing, public relations, and advertising firms
- » Real estate companies and investors
- » Law firms and consulting agencies



REMEMBER

Success in any business requires both competence in the industry and business management skills. However, ancillary businesses don't have the high costs (including high taxes) and regulatory requirements that make success in the cannabis industry so challenging.

Investing in the industry

Cannabis businesses are expensive to start and maintain, and because it's federally illegal in the U.S., entrepreneurs have difficulty finding bank loans to finance their startups. They often need to use either their own money or money from private lenders or investors. If you have money available to invest and you can afford to let that money ride, you may be able to earn a sizeable long-term return. However, you may also lose your entire initial investment.

The key to success is performing your due diligence. Before investing, research the industry as a whole so you have a general understanding of it and can recognize the major players. Also research individual companies thoroughly. Invest in only those companies with solid leadership and financials.



WARNING

Cannabis investment scams are rampant. Don't rely solely on articles, blog posts, incoming email messages, or press releases for guidance on finding cannabis companies in which to invest. These sources may be promoting scams or highlighting the good news and downplaying any negatives for ulterior motives.

See Chapter 16 for more about investing in the cannabis industry.