

# THE HOME CANNABIS CREATOR

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#### 1. Introduction

Welcome to The Home Cannabis creator. Congratulations on your excellent taste in subject matter.

This is a straightforward compilation of the collective experience of a successful co-op of Seattle-

area growers known as the Snohomish County Cannabis Creators (S.C.C.C.). Founded with the planting of a seed in 1991, the S.C.C.C.'s mission is to make information and high quality clones available to anyone interested, so that they can have the know how and the genetics to produce world-class sensimillia. Membership is then gained by selling this product well dried for a reasonable price, so that it will always remain widely available for the sick, the stressed and the silent lovers of the cherished herb. This guide is intended specifically for people who wish to create cannabis indoors, using lights, for personal use or on a small commercial to large commercial scale. It is geared for the novice or unsuccessful, because if you are experienced and successful you have established what works for you, and that is the system that I recommend most highly. I have known too many happy growers that made the mistake of buying one of those 300-plus page grow textbooks after growing successfully for a period of time. Usually they are horrified when they discover that the "official" book tells them that they are doing something, or everything, completely wrong. The methods described here are certainly not the only way to create large amounts of high quality cannabis; in fact, it seems to me that there are as many ways as there are growers. What it all boils down to in this school is how to have the greatest success, productivity and satisfaction, while spending the least amount of time, energy, and money in the process. It boils down to efficiency.

Also included is my personal favorite part, the dispelling of a persistent list of local tall tales that cause many current cannabis creators unnecessary stress or confusion and cause some people not to grow at all. If you do grow, but are not producing the quality or quantity of cannabis that you desire, or if you have been unsuccessful in the past, I suggest that you read on with an open mind, as if you hadn't ever attempted to grow before. Without change, things will only remain the same- so the first rule still applies to you- forget what you know. Start fresh. Don't try to improvise with your old supplies, methods, equipment, or anything else if it's a compromise from what is described. Be aware that large gardens are a full time job. A large garden won't necessarily produce more buds than a small garden unless you spend proportionately more time tending it. Vast amounts of information have been left out for simplicity's sake. Cannabis is certainly one of the most complex subjects that one could hope to ponder, and you will find your career as a cannabis creator to be a continuous learning experience, for however long you pursue it.

#### A. Forget what you know

The very first and most damning mistake a novice cannabis creator can make is stubbornly sticking to anything that you think that you already know about creating cannabis. Many people who decide to grow do so after years of being what I call "cannabis enthusiasts". That is to say, that you have already had much experience with cannabis, seeing, smelling, distributing and of course tasting, and thus of course, it probably has been the subject of many animated conversations in your life. But talk is cheap. Ask yourself this- "Have any of my friends confided in me that they were producing large amounts of high quality cannabis, and did they actually let me assist in the process from start to finish?" If the answer is yes, then you don't need this book. If your friend grows and trusts you that much, have them set you up. If the answer is no, I implore you to forget everything that you have ever heard about it, because 99.9% of all stories circulating about successful cannabis creators are completely false. The reason for this is simple: successful cannabis creators don't talk about their operations. I cannot count the number of ridiculous stories that I have heard from people (usually at a party or bar, after a few drinks) concerning this mysterious grower-friend and their even more mysterious methods. Common tall tales include the guy that has 500 (or more!) 8 foot tall Christmas trees in his basement (hopefully nobody with 500 plants would tell this blabbermouth, and by my calculations, this basement would have to be about 50 x 100 feet). Or the guy who hung his plants or buds upside down so that "the resins would 'drain' into the buds" (resins don't 'drain', period). Or their friend who sprayed the buds with (pick one) water, fruit juice of any kind, sugar water, or anything else to give them crystals or make them look, taste or smell better.

The next time that someone tells you "this is 39th generation bud!" ask them what a generation is. I still hear about Mylar on the floor and/or ceiling, or multiple layers of Mylar to avoid infra-red

detection (this story was spread by a narc who happened to have a business selling Mylar). My personal favorite is the amazingly common story that someone is actually growing their plants upside-down- buckets in the air, lights on the ground. ("Uh... whatever.") For our purposes; for the normal Joe or Jill who just dreams of smoking the kind freely, (as in for free), or maybe slightly bigger dreams of quarters and pounds available, these kinds of stories represent total ignorance, whether or not they are based on truth. Furthermore, anyone who alleges to be growing "the UW" is probably misinformed at least. The University of Washington did have a medical research program, but only for two years, 1978 and 1979. Then came the war on drugs, and research was banned by any independent non-government laboratories. (Hmmm). I am highly suspicious of "U.W." stories because I have seen every different kind of bud referred to as "the U.W.", no two ever alike. As far as the person who got busted when the power company or the police helicopter "detected" their grow lights, most of these tales are ones that the fascists would be happy to have you believe. As for power consumption, many residences use lots of electricity for many different reasons including cannabis creation. There is no way that anyone can detect anything through the power lines. As far as the Infra-red thermal imaging (heat sensing) technology that a minority of law enforcement have available, this device can only measure the temperature of an outside surface like the roof or a wall. High powered lights get quite hot so they tend to make warm spots, but if your lights are in any well insulated space like a basement, they may not even show up at all. Also if there is attic space above the grow room, the outside roof temperature would not be affected because the air in the attic acts as an insulator. One notable exception to this rule would be any warm exhaust air flowing out of the room directly to the outside. On a heat-sensing device this would appear as a large fountain. This can be avoided by exhausting into another room (attic, garage, etc.) or up a chimney, instead of directly to the outside.

But listen carefully, students, this is the twist that they want you to miss- In either case, it is a moot point because if they are using these techniques on you, then you are already under investigation. If you are already under investigation, it probably wasn't anyone who you don't know that "detected" you, get it? I think that this concept is the underlying point and theme of this whole book. It cannot be stressed or understood enough that your main problem as a smart grower will definitely not be law enforcement figuring it out by themselves. Jails are chock full of people who would give up their own mothers to get out. Police forfeitures generate lots of money that they can use to encourage criminals on the outside to be narcs. Tip lines ring off the hooks, deluged with calls from people brainwashed with drug-war hysteria, who think they heard a rumor or smelled something just slightly out of the ordinary. Cops bust naive kids with a pipe or a bowl, and then threaten them with anything that will get them to squeal. These are just a few of the ways that modern law enforcement tries to deal with the responsibility of having to find and imprison otherwise normal Americans for something as common and benign as eating donuts. The fastest ways. The least expensive ways. The easy ways. Another good tip is that anyone who claims to have the best pot definitely doesn't. So don't believe what you've heard.

## B. Cannabis is a plant

The concept of cannabis creation can be understood most easily by keeping one simple fact in mind- cannabis is a plant. A very highly evolved plant for that matter. Plants were not designed to grow indoors. So in order to have a happy thriving garden indoors, you must fool the plants into believing that they are in fact outdoors. It is your job to re-create or simulate to the last detail, The sun, the wind, the rainfall, climate and soil conditions of the perfect outdoor plot in say, northern California, Thailand, or Hawaii. In this environment cannabis is the fastest growing plant on the planet. It processes the suns light (photosynthesizes) more efficiently than any other fast growing plants such as bamboo, corn or kenaf.

## C. General information about cannabis

Cannabis is a dioecious woody herbaceous annual. Dioecious means that each plant will have distinct male or female characteristics, woody refers to the consistency of the stem, herbaceous means, yes, pot is an herb, and annual means that outdoors, if left wild, it will complete its entire

growth cycle, from seed to maturity (seed) in a single season and then die. This is perfectly normal. The main active ingredient in cannabis is THC, or delta-9 tetrahydrocannabinol. The THC is concentrated in the resins of the mature female flowers and to a much lesser degree in the leaves and male flowers. These parts of the plant are simply dried and then smoked or eaten to obtain the desired effect. In over 5000 years of documented medical history, from ancient Chinese and Babylonian cultures right up to today in the United States, there has never been a reported overdose or death from ingesting this substance. It has been estimated that one would have to consume at least seven pounds of medium quality cannabis in a short period of time just to produce a "toxic effect" in the human body. Every modern governmental study in the world convened to examine the issue, including studies by the U.S. Army, the Jamaican coptic study, Nixon's 1968 LaGuardia Commission and more recently the Republican governor of California, George Dukemajens' Shaffer Commission, have all recommended decriminalization. In 1988, the drug enforcement agency's (D.E.A.'s) own administrative law judge, Francis L. Young wrote, in an over 60 page long ruling that "it has been clearly shown [in this court] that cannabis is far less toxic than many foods that we commonly consume" (like potatoes) and that "it is unreasonable, arbitrary and capricious" that this substance is placed in "schedule one", the United States federal governments' category of drugs that includes PCP and heroin, not even available for prescription by doctors.

There are three important varieties of cannabis that you should know about. Cannabis indica is generally a short (two to six feet) bushy plant well suited to indoor growing with chunky ripened flowers that can range in potency from okay to mind-blowing. Cannabis sativa is generally a wild unruly vine indoors, and outdoors has been known to reach heights of 16 feet or more, yielding pounds of slender, flavorful buds that can range in potency from okay to messing with the space-time continuum. The majority of good seed stock and clones available to today's indoor grower are pure indicas and lots of indica/sativa hybrids (crosses, or blends) usually leaning towards the indica side. Cannabis hemp is by far the most important variety of cannabis. Its flowers would not interest you, in fact they have earned this plant the nickname "ditch weed". The impressive part of the hemp plant is its stems, which can provide a stunning array of important and biodegradable products, such as a natural fiber for papermaking, textiles and to replace timber products and therefore clear cutting, and cellulose, an industrial feedstock used to make plastics, chemicals, fibers, non toxic fuels for heating and generating electricity, and clean burning ethanol to run cars. Its edible seeds are also impressive, a highly nutritious food containing critical unsaturated fatty acids as well as more edible protein than soybeans, and can be used for producing high grade biodegradable oils that can form the base for paints or lacquers or be used for lubrication. For endless information on this subject and enlightenment on the meaning of life on earth, I highly recommend reading "The Emperor Wears No Clothes" by Jack Herer.

For today we will concern ourselves with only the first two varieties of cannabis; hemp is deserving of its own book. Although there are technically only these two classifications of high THC varieties, indica and sativa, cannabis must be thought of on a much broader scale. An easy way to think of the countless different pure and hybridized strains of cannabis is to compare them to dogs. When talking about dogs, hybrids are called mutts, but everyone knows that mutts can have more character and charm. Like dogs, pure lines can only come from pure parents. Also, a dog may be a German shepherd or a Chihuahua, but just because a dog fits into a category like that doesn't mean that every shepherd or Chihuahua is the same as the next. In fact, it's just the opposite. All living things have DNA which help determine all of their physical characteristics. DNA is what insures that no two people, dogs or cannabis seedlings will ever be alike. Even identical twins are different. For our purposes, DNA is the code that contains every bit of information as to how a plant will grow, how it will look, its potency and every possible trait that it could ever have. To further the dog analogy, the DNA and thus all physical features come 1/2 from the female parent and 1/2 from the male parent, resulting in offspring (seeds or seedlings) that should somewhat resemble their parents. Unlike dogs, cannabis can be "cloned". It is very important to understand the simple basic difference between a seedling and a clone. A seedling is a plant that was sprouted from a seed that was the product of sexual reproduction between a male and a female. Approximately one-half of these seeds or seedlings will be female, and approximately one half

male. Each and every one, regardless of its sex, will be different.

A clone was never a seed. A clone starts out as a growing tip of a larger established plant (a seedling or a clone) which was cut off, treated with a rooting hormone, put into its own small container, sprouted roots, and is now a separate plant, although potentially identical in every way to the plant that it was taken from. As its name implies, it is an exact genetic duplicate. As far as the plant is concerned, it is the same plant. It never died, the DNA stayed intact, so that clone will always be the same sex, and have the same growth traits as well as the same potential potency, flavor and high. This is very handy for the cannabis creator, because all you have to do is obtain one good clone and every bit of cannabis you create can be exactly the same, technically never increasing or decreasing in potency. Any potency variations in a mono-clonal (one clone) sinsemilla (seedless-no boys=no pollen=no seeds) garden are related to environmental factors and conditions, maturity, drying techniques, and the presence of a perceptive, consistent, hard-working grower. (Or the lack thereof).

## 2. Risk factors

### A. Rip-offs, tip-offs and your own big mouth

Reading a chapter entitled "risk factors" of cannabis cultivation in the United States, one might automatically assume that the subject of that chapter would be law enforcement. After all, hundreds of millions of dollars are spent every year by various anti-plant life agencies around the country on the ferocious war to exterminate this harmless and helpful species. However, despite the normal paranoia that is a byproduct of the current system, law enforcement actually only represents about 2% of the problems that face modern American freedom fighters. Law enforcement techniques like reducing mandatory sentences for squealers and placing anti-cannabis ads with 1-800-GROW police hot lines are vivid proof of exactly how clueless these people are when it comes to where to start looking for the cunning grower. Any estimate given by the authorities relating to the percentage of cannabis seized in a particular time period or area is fabricated. The truth is that they have no idea how much of the crop was uncovered, because the remainder went undetected. By far, the number one risk facing the modern cannabis creator is thieves. This point cannot be emphasized enough. Rip-offs don't answer to anybody. They don't care about your civil rights. They don't follow any rules at all. In my opinion, people who steal are really at the bottom of the food chain, period. But people who steal cannabis, especially from the growers, endangering their freedom, have got to be the saddest, lowest, most pathetic and most thoughtless (devoid of thought) individuals on this earth. And they are abundant. The number one way to get busted is when the ripoffs come to steal your crop and somehow the cops get called. This may be simply the concerned neighbor who calls when they see prowlers, or a concerned passer-by who only witnessed you violently pummeling a would-be intruder with a bat, or someone who heard gunshots when you shot the scumbag, (not recommended) or the shots of the scumbag shooting you (less recommended). (It is a serious legal complication to have a gun at the pot growing location).

The second most common way to get busted is through your girl/boyfriend or your roommate/grow partner, (love and money are both by nature de-stabilizing) or anyone else who has knowledge. No matter how much you trust someone, they might end up telling just one other person, who "they trust". This person has nothing to lose and will undoubtedly tell just one other person who "they trust" and who you might not even know. The cannabis creators' credo should be "for every one person you tell, that's too many." It can be good to have a partner if you have a large garden, because cannabis creation can be a lot of work, but this person should have just as much to lose as you do. This is the best incentive for both of you to keep your mouths shut. Realistically, a small commercial operation (5KW or less), in a good location, with a good odor control system that only two trusting people know about is virtually unbustable. You peek out of your blinds for months, always expecting to see the cops, but the bust only comes when a Cessna has engine failure and crashes through your roof. In my experience, I have never seen any cannabis creator get busted because the police figured it out by themselves. It is true that the

slightest hint may get them on your trail, but it is inversely true that without that, you should be getting away with your wildest dreams.

## B. Number of plants

Under the law, a cannabis creator is judged by one factor and one factor only; the number of plants in a single residence. A plant is defined as having roots, so unrooted clones do not count. The cannabis creator must also learn to distinguish between state and federal law. Washington state has some of the most lenient cultivation laws in the country, but this country has some of the harshest, most evil and draconian penalties on planet earth. According to state law, the categories are 1-99, 100-299 and 300 or more. Federal law adds a 50-99 category. It is hard to say exactly what determines whether a given case will go to state or federal court. Most cases below 100 plants go to the state because theoretically, the feds only want the big fish, but this simplistic analogy cannot explain the arbitrary methods of our warped and corrupt federal government. In fact the whole theory of saying that a large number of plants equals a large amount of cannabis is fundamentally flawed. 300-plus plants could potentially fit under a 400 watt lamp and yield 6 or 8 ounces of dried product, or 300 plants could fill a vast outdoor plot or greenhouse and yield one or more pounds per plant, a considerable difference. So, we find that living in this state of unreasonable and illogical laws, people learn to turn the laws around and use them against their oppressor. Case in point: A first time offender (no prior felony convictions) will almost never receive jail time in Washington state court on a case of 1-99 plants, and certainly no more than 30 days. The maximum penalty is 90 days. This is very good to know considering that in an average sized basement, converted to a 3 to 5KW grow facility, 99 plants or less can easily yield two to four or more pounds of dried, manicured cannabis each month. When you have achieved that, and you still aren't meeting your economic goals, you can easily afford to rent another house or apartment and install 99 more units to stay within the one-hundred or less prosecution category. Cake.

## C. Odor control

There are many common ways to reduce the fragrance of pungent cannabis flowers, including ionizers (negative ion generators), charcoal filters, air scrubbers, and chemical sprays. Unfortunately, reduce is the key word here. None of these methods will do much to eliminate any smells except from the smallest room or the least stinky garden. There are some strains of cannabis that are known for their lack of the trademark pot smell, and are perpetuated for that reason. I realize that you're more likely to find a charcoal filter than any particular clone, but I am trying to emphasize that basically, you should be prepared to deal with the beautiful smell of fragrant cannabis flowers. Here is a brief overview of how these devices work. Ionizers work by generating negatively charged ions and dispersing them into the air. When these negative ions come in contact with positively charged particles floating in the air like dust or pollen, they change the particles' charge to negative, causing the particle to "precipitate", or to fall to the ground. This results in cleaner air, and dirtier floors and walls. Another kind of ionizer is called a "collector ionizer". These incorporate some disposable filter and either a positively charged surface which attracts the ionized particles, or a small fan that moves the air through the filter (which usually also contains activated charcoal) and then injects the ions into the outgoing airstream. Charcoal filters are similar to these but use only the fan and activated charcoal, and are usually slightly more heavy duty, and seem to work about as well, as long as you keep the charcoal fresh by changing the filter regularly. Air scrubbers consist of a large barrel of water with your exhaust piped into it, like a giant bong, and then to the outside. Pine cleaner and/or liquid smoke are added to the water to taint the smell. I have never personally built one of these but the theory makes sense, except that it seems awkward and I don't think it would work with high-powered exhaust blowers.

Chemical sprays are used in hospitals and kennels to deal with very harsh odors. They work, but I personally find the artificial, chemical odor overwhelming to the point of nausea. I do not recommend these sprays because they are impractical to use on a continuous basis, and frankly

if its gonna stink, I'd rather have it stink like greenbud. If you can't find or afford any of the above, a simple trick is to buy a box of urinal deodorizers from a janitorial supply store, or maybe car deodorizers, and put one or two next to your exhaust blowers' intake. Now aside from the above described odor reduction devices there are two more things that I will recommend for this task. The first one is called an ozone generator. This mighty device generates ozone, an unstable oxygen molecule that actually changes the molecular structure of stinky particles that they come into contact with. This results in total odor elimination. The proper way to use an ozone generator is piped into your outgoing exhaust. (The generator has its own small blower built in.) Of course, like everything, there are trade-offs for this amazing performance. Ozone can be harmful to plants, animals or people in too high of a concentration. The only way to use it safely is by using it to treat the exhaust that is going outside. Also, ozone generators are quite expensive. The three models that I am familiar with run around \$750., \$1350., and on up to \$2600., with this most expensive model being quite adequate to de-stinkify the 5000 C.F.M. exhaust of a large warehouse (25KW) full of stinkiness. (Yummy!) It seems to most people like a lot to spend, but in some situations, it can be your saving grace. I recommend ozone for all commercial growers. If you are interested in this device, try calling indoor grow supply stores with ads in the little nickel or yellow pages.

The second, most practical and most effective method of odor control is your exhaust system itself. You will learn later in this book that a good exhaust system is just as important to happy plants as light or water, and although this won't actually make the outgoing air less stinky, it allows you to control where the stinky air goes. For example, lets say you live in a third floor corner 2 bedroom apartment. One bedroom is your bedroom, the other is your grow room. A properly installed exhaust system can solve two odor problems at the same time. One, inside the living space of your apartment. By leaving your exhaust blower running 24 hours a day, there will always be "negative pressure" inside the grow room. This simply means that air will constantly be flowing into the grow room through every possible crack and opening, and when fresh air is constantly flowing in, no smell gets out. Two, outside your apartment. By cleverly routing the exhaust pipe into your unused chimney pipe, or out of the far back corner of your attic, the smelly air will end up where there are no noses to smell it- either 4 stories off the sidewalk or parking lot (and heading up) in the chimney pipe example, or on the backside of your building where there are no stairs and where nobody hangs out. (If a bud reeks in the city, but there are no noses to smell it, did it ever really smell at all?) Another thing to consider in apartment cultivation is that even if you can smell the weed out in the parking lot, there is no way to tell which apartment it is coming from. It sounds crazy, but 'round these parts it happens all the time. Smells pretty good, too.

#### D. Power consumption

I was reluctant to even include a section about power consumption because I thought that it would just breed paranoia. Residences all around use large amounts of power for all kinds of things, including cannabis cultivation, and there is no way for grow lights to be "detected" by the power company. However, I do have a list of power saving tips for the power conscious. The number one power sucker in your home is the hot water heater. Most of these units use between 3500 and 7000 watts. Turning off this unit at the circuit box will dramatically reduce your power bill (not to mention the length of your showers, ha ha). Number two would be your baseboard heaters. These are the most wasteful power suckers. A 4-foot long baseboard unit can draw 1000 watts or more. A small apartment usually has several of these. Turn them off at the box. Plug-in electric space heaters usually consume 1000 to 1500 watts. Cold? Hang out with the ganja. (I have seen electric internal forced air heating systems in large homes that consume as much power as ten or more 1KW grow lamps. These are ideal grow houses because by turning off the heat, your bill may not be any higher than the previous residents). Tied for number three are your dishwasher and clothes washer. Both of these units use lots of hot water, and the dishwasher even super-heats the already hot water. The clothes dryer is also a major culprit. Use paper plates and go to the Laundromat. At number four we have the refrigerator and freezer. Most people won't want to try and live without these, but try putting gallon jugs of water in the empty

spaces (if any) of both. Water retains its temperature more efficiently than air, so your fridge will use less energy. Also, a lot of people seem to have this thing about leaving all the lights in the house on all the time. Remember to turn off lights you're not using. Use low wattage bulbs. If no one is living at the grow facility, all of these appliances should be turned off at the box and you should be growing a lot of weed.

### 3. Where to start

#### A. Choosing a space

Any space is a good space to create cannabis. Ceilings should be a minimum of about 6 feet. Attics, crawl spaces, alcoves, closets, sheds, barns and extra bedrooms are good. Basements are the best unless you own property and happen to have a backhoe and an extra school bus or storage container to bury. Anything underground is very good. If you need to maximize your square footage in a small bedroom, take the closet doors off and use that space just like a part of the room. The space will need a good power supply (for 2KW or more, the range or clothes dryer plug will provide 240v power) and access to water (trash barrels filled with a garden hose are common in spaces that don't have a nearby bathtub or work sink) and somewhere to vent your exhaust.

#### B. Lighting

##### I. AC primer

If you don't know anything about household electricity, and don't want to learn by say, checking a book out from the library on basic household wiring, then I recommend trying to stay under about 2KW (two thousand watts) of power use to minimize the risk of fire on, or the electrocution of, your person. Always keep extension cords off the ground and keep cord runs as short as possible. Wrap cord connections in duct tape. If you can't plug your 1KW lamps directly into the wall socket, use extra heavy duty cords, and never ones over 25 feet long. Never use splitters or power strips on outlets or cords running 1KW lamps. Never run more than one 1KW lamp on a single household circuit (15 amp breaker). Only run circuits at 70 percent of their rated amperage for a safety margin. The formula to calculate amperage is watts divided by volts equals amps. (Example: 1000 watt lamp at 120 volts = 8.33 amps). (120 volts is standard American household wall socket voltage). If you plan on using more than 2KW, then you should use a "power drop" or "power board". This is essentially a breaker box that wires directly into a heavy-duty (240 volt) power source in your residence and is installed nearby or in the grow room so that you can safely power multiple 1KW lighting systems. Boxes designed specifically for this purpose are available at indoor grow supply stores and incorporate a heavy duty timer that will put up to 8 1KW, 240 volt systems on a timed cycle of your choice. They can also provide stout supplies of 120 volt power if necessary for high amperage, low voltage accessories such as exhaust blowers, fans or heaters. These outlets can be on the timer also, or can be wired for continuous power. Good indoor grow supply stores will custom make the board that you want. These boards should have "pigtailed" (short fat cords with molded 240 volt plugs adaptable to your dryer or range outlet). Alternatively, the board can be purchased without the pigtail and "hard wired" to a compatible plug or directly to the circuit box with heavy gauge Romex cable (10 gauge solid copper wire) by someone who surely knows what they are doing. It's not too complicated, but it can be very dangerous. Be smart.

##### II. H.I.D.'s

H.I.D. stands for High Intensity Discharge. H.I.D. lamps that are commonly used for cannabis creation include metal halides (M.H.), high pressure sodiums (H.P.S.), sodium conversions, balanced spectrum sodiums, and fluorescents. Metal halides are the most common variety of H.I.D. lamp for indoor horticulture. They also have the shortest service life. Their light output will drop to 50% of new in only about 6-9 months of regular use, and your yields will drop accordingly,

so only new metal halide lamps are suitable. H. P.S. lamps are substantially brighter than M.H.'s and last longer, but emit most of their light in a narrow red-orange color band, as opposed to the M.H.'s full spectrum (all colors), sun-like light. Sodium conversions are a retro-fit replacement lamp that run in a M.H. system but use slightly less power and emit light in a more balanced color spectrum than regular H.P.S. lamps. They also retain their intensity about ten times longer than M.H. lamps, but are quite expensive. Balanced spectrum sodiums were developed by the Dutch specifically for their world-renowned greenhouses. They started with a H.P.S. to achieve maximum efficiency and service life, and then tweaked the ingredients in the lamp to increase the amount of blue light in the light spectrum. The 430 watt son-agro lamp by Phillips was the first balanced spectrum sodium to hit the market in the U.S., and remains the most efficient (most light per watt) 400 watt class lamp available. Recently, I have seen Dutch 600 watt balanced spectrum sodium systems available to American growers. Although they are incompatible and unfamiliar, These systems warrant a very close look. They claim to produce 90,000 to 100,000 lumens, or about 80% of the output of a new 1000 watt M.H., using only 60% of the electricity. In a large garden, this efficiency increase could increase yields significantly.

Florescents are bulky and relatively inefficient, but do provide a good color spectrum, generate very little heat and have soft, even light distribution. These characteristics make them very suitable for rooting clones or for growing very small plants (under 12 inches). They are also amazingly inexpensive. A four-foot, two-tube shop-lite fixture is only about ten dollars at your local hardware store. Many different kinds of tubes are available to put into these fixtures, some fancy models costing up to 15 dollars or more per tube claiming better growth, but they aren't any brighter, and that is what the cannabis plant cares most about. "Cool white" tubes are the smart choice if using florescents. They are the most common, very inexpensive, usually less than a dollar each, and have a similar color spectrum to the M.H., good for vegetative growth. The "watts per square foot" theory applies to florescents also. (See "Lighting requirements", below) Florescents use about ten watts per foot per tube, so a four-foot two-tube unit would consume about 80 watts, and would be suitable to light four square feet at 20 w.p.f.2. (Minimum vegetative requirement). These lights do not even compare to the light output of M.H. or H.P.S. lamps. You should not try to grow tall plants with florescents, because the lower branches will basically be in the dark, due to the lack of light intensity over about one foot away from the tubes themselves. M. H.'s, sodium conversions, and balanced spectrum H.P.S.'s are the choice of serious cannabis creators for their flowering rooms. All of these H.I.D.'s work on the same principal. They all have "ballasts" that plug into the wall, and transform the low voltage household current (120v or 240v if you are using a power board) into high voltage (480v) to run the lamp. When you turn it on, a capacitor in the ballast builds up a huge bolt of energy, which is sent to electrodes at either end of a gas filled tube inside of the lamp itself (the arc tube). This burst of energy causes an arc of electricity to jump through the gas and the arc is then maintained by the high voltage, generating very intense light as a reaction, thus their name, High Intensity Discharge.

M. H. and H.P.S. lamps come in various wattages, but I mostly only recommend 1KW (1 Kilowatt, or 1000 watt) lamps for flowering rooms, or the occasional 400 watt for a very small space. Smaller ones such as Florescents or 150, 250 and 400 watt H.I.D. systems can be utilized in vegetative areas with young plants, but if you plan on growing them above about 14 inches tall in the vegetative room I still recommend using 1KW's for best results. These systems consist of: Power cord. Plugs into wall or power board, supplies ballast with low voltage 120 or 240VAC (Volts AC). Ballast. Essentially a transformer. Converts the low voltage to high voltage. Lamp cord. This is a long non-detachable cord that carries the high voltage from the ballast to the socket assembly. The socket assembly is where the lamp screws in and also where the hood attaches. The hood is a large reflective piece that focuses the light downward. The lamp is a vacuum sealed glass sphere that contains the gas filled tube which emits the light. All of this usually comes in a package deal for around \$250. There are two main types of hoods, vertical and horizontal. Both refer to the orientation of the lamp. A vertical hood holds the lamp vertically, with the socket side up and the tip of the lamp pointing downward. A horizontal hood holds the lamp horizontally, with the socket on one side and the lamp sticking out sideways. Vertical systems seem to be more practical because they are less expensive, less complicated to

assemble and, as long as all the walls are lined with Mylar, they distribute more direct light more evenly.

### III. Mylar

After you have gone to considerable trouble and expense to achieve proper lighting in your space, it only makes sense to be aware that to get the maximum light levels (i.e. fat buds) out of your system, the plants need to be surrounded (four sides) with a highly reflective surface. Other things have traditionally been used such as tin foil or space blankets, but these are totally ineffective, even compared to flat white paint, which is a better alternative. Mylar is a highly reflective plastic sheeting used to bounce light back on to the plants. Using mylar is the most effective and economical way to increase the critical light levels in any indoor garden. It is by far, the most reflective material available to line your grow area, so that your precious light is directed onto and absorbed by your plants, and not the surfaces of the area surrounding them. It comes in rolls that are generally about 4 feet wide, in thicknesses of 1 or 2 mil. (Thousandths of an inch). 2 mil. is about 40% more expensive, and both thicknesses reflect equally, but the 1 mil. tends to be hard to work with and wrinkles easily, whereas the 2 mil. goes up more like a mirror and is easier to re-use. It should be hung on all walls that face the plants, and lightweight, moveable barriers can be made for the sides that open to the room using foam insulating board, cardboard, or frames built from 1x2's, and covered using duct tape and staples. To prevent staples from tearing the mylar it is a good idea to put a piece of duct tape over the spot where you are going to staple it, then staple through the tape several times. Adhesive caulk can be used to hang it on concrete or brick surfaces.

IV. Lighting requirements As far as lighting requirements for a given space, try to think on a watts-per-square-foot basis. If you learn to do this from the beginning, you will find that it is an easy and consistent way to relate the relative brightness of any grow area. (Also, yield-per-square-foot is a good way to track production). You will also find a direct link between this brightness and the growth habits, bud density and overall yield of your plants. To calculate the square footage of your area, multiply (L)ength times (W)idth. Then divide the square feet into the total watts of all the lamps. This figure is your watts per square foot (w.p.f.2). A minimum of about 20-30 w.p.f.2 will be adequate for the vegetative area and 30 to 40 w.p.f.2 or more is recommended for highest yields and vigorous growth during flowering.

### C. Ventilation

Outdoors, plants are exposed to constant fresh air, so they are supplied with an unlimited amount of carbon dioxide. Indoors, the air is mostly stagnate, so the cannabis creator uses high powered exhaust fans to simulate the outdoor fresh air environment. The growers ventilation system actually serves many purposes. By constantly removing hot, humid air out of the grow space, the exhaust serves to reduce high humidity levels caused by water evaporation [from wet soil or reservoirs] in the room, and to control the substantial heat created by 1KW H.I.D. systems. As the stale air is removed, fresh air flows into the room to take the place of the old air, which will be depleted of carbon dioxide by fast growing cannabis plants. This fresh air contains lots of fresh carbon dioxide for the plants to breathe. Also, as discussed earlier, your exhaust system is your most obvious and effective means of odor control. These are reasons why for the serious indoor horticulturist, ventilation is not an option! It is mandatory. Ventilation is just as important as adequate light or water. This means that you not only need to exhaust a lot of air out of the room, but vigorously circulate the air inside the room as well. 16-inch oscillating fans and 20-inch box fans are good to place inside the room for blowing fresh air around the plants. Except in the case of very young plants that are not yet established or not growing quickly, generally more is better, especially in flowering. Plants that have been exposed to vigorous air circulation grow much sturdier and more vigorously than plants that have not. Exhaust blowers, (also called squirrel cage fans) are rated by C.F.M. (cubic feet per minute). Good ventilation means having a blower that will keep your average temperatures around 78 degrees and your relative humidity at about 50%. If you have no idea what to get, start with about 150 to 250 C.F.M. per 1KW H.I.D. lamp and

ballast. Common sizes include 100, 265, 465, 745 and 980 C.F.M.. The fan in your bathroom is usually rated at about 55 C.F.M.. Four inch dryer duct is only adequate for up to 100 C.F.M.. Above that you should use 7, 8 or 10-inch aluminum flex-duct for up to 1000 C.F.M.. Keep the run as short as possible and avoid sharp turns for maximum airflow. Connecting exhaust blowers to the ducting used to be a labor intensive task involving razor blades, several cardboard boxes and an entire roll of duct tape. Today, your local hardware store carries an amazing new product called spray insulating foam. Try some. Apply liberally.

#### D. Soil and Buckets

Although any prepackaged potting soil will do, For production purposes, I recommend Pro-Mix. It comes in bales, is fairly easy to find and consists primarily of Canadian peat moss and perlite. This provides proper pH levels, does not pack down easily and won't remain soggy, allowing the roots to "breathe" (healthy roots need a good balance of oxygen and water) and therefore also allowing you good control over the watering/fertilizer regimen. It is also very inexpensive as compared to other options. Although the hand watering and appearance of the media may make you think that this is a soil-based system, it is actually a quasi-hydroponic setup in which the medium provides the optimum water-to-oxygen ratio, and not the nutrients to the roots (plant). All nutrients are provided by regular fertilization with a high-quality, full-spectrum, hydroponic formula which is dissolved in the water at watering time. Normal potting soils and other heavier soils can be amended with about 2 or 3 parts peat moss and perlite and/or vermiculite to one part soil to decrease water retention. Heavy, soggy soils create unhappy root conditions. A simple test for any soil is this: take a handful of wet soil and squeeze it into a ball in your fist. When you open your hand it should fall apart or fall apart with a slight poke. If it becomes a solid ball after you squeeze it, it is probably not suited for your purposes. When filling the buckets, do not pack the soil down. Break up any chunks. The consistency of dry soil should be light and fluffy. As far as buckets go, a simple rule of thumb is about 2 gallons of capacity per foot of the height of the finished plant. Too small of a container can definitely restrict growth and cause watering problems. Most growers I know transplant rooted clones into 2 gallon containers for vegetative growth, and then transplant them into 7 gallon containers for flowering. Gro-bags are convenient for getting stealthily in or out, as they make a much smaller package than a stack of buckets. Their squat, squarish shape is also well suited for indoor growing.

#### E. Hydroponics

Hydroponics is Latin for "working water." The concept is very simple. Instead of growing plants in soil that is naturally rich in organic nutrients (like compost or various poop), the plants grow in a media that provides the roots (plant) only with physical support, and a supply of oxygen to the roots that is unachievable in normal soil based systems. Rockwool, the most popular hydroponic medium, with its near-perfect oxygen to water retention capabilities has been the home of some of the healthiest, fastest growing, most vigorous plants I have ever seen. The nutrients are provided solely when the media is periodically flushed or soaked in water that has the necessary nutrients dissolved in it. This is usually accomplished with a simple set up of pumps and sequence timers, which deliver the solution out of a reservoir to each plant using drip-emitters that water each container individually, or ebb and flow techniques that fill and then drain trays or tables. This is called "active hydroponics" where the water is actively moved around. The Pro-mix based system described in this book is essentially a "passive" (no pumps, no timers) hydroponic system, because the media doesn't provide the nutrients, they are provided dissolved in the water at watering time. Unfortunately, As with many simple concepts, hydroponics doesn't necessarily translate easily to reality. Most hydroponic media leave little room for error, and one mistake can spell disaster. I recommend full blown hydro set-ups only to the experienced grower who has a keen sense of all of the needs of his or her plants.

### 4. Growth Cycle

#### A. Photoperiod

This is the part about how you make your clones or seedlings (that is to say, small young plants that consist only of stems and leaves) into plants with big, fat, juicy buds. In the wild, male and female cannabis plants sprout in the spring, and grow side by side through the summer. At some point in the summer, they begin their flowering cycle. Shortly after that, the males' flowers start to mature, shedding their pollen into the air, pollinating the females' adolescent flowers, which then grow multitudes of seeds. When the frost comes, the plants die and the seeds are scattered around the surrounding area. Some seeds may be eaten by birds or other animals and may be passed through the animal and dropped in another location, nature's way of spreading it around. Then comes winter, the rain and/or snow come, and some of these seeds get covered with a layer of composted leaves and/or soil or dung, in the animal case, and soon the cycle begins again. Spring comes, sun shines, and behold a seedling- or a whole generation of seedlings. When the seeds sprout, it is early in the spring and the days are much longer than the nights. The advanced cannabis plant actually has the ability to measure the length of each night (thus photoperiod, or a photoperiod determinate plant). As long as the nights are short enough, the cannabis plant will grow only stems and leaves (vegetatively). About halfway through the summer there comes a point where the days and nights are equal length (equinox) and it is about this time that most varieties of cannabis begin their flowering cycle. First stem and leaf production will suddenly accelerate; some varieties will double in size during the first 10 days or two weeks. Then upward growth slows, in some cases, stopping altogether, and the tedious slow process of flower production begins. This continues, buds building on buds for the rest of the summer until they are ripe. If the males are removed before they shed their pollen, the females will continue to flower, hoping for some pollen to float by. As long as it doesn't, you will eventually have a crop of ripened 'sinsemillia' buds.

Indoors, this cycle is very simple to replicate. You must have two separate areas for growth. A vegetative area with 24-hour continuous or 18 hours on, 6 hours off "short night" light for clones, seedlings and plants that are still too small "to put into flowering", and another, usually much larger space in which the light(s) are on a timer (12 hours on-12 hours off every day). It is important that during the dark cycle you do not interrupt your plants' "sleep." Even a small amount of light reaching the plants for a short period of time during the dark cycle can substantially interfere with the flowering cycle, causing the plants to be set back a week or more by causing what is known as photoperiod shock, when a plant can't figure out what season you are trying to duplicate. It should be pitch dark in the flowering room for 12 or even 13 hours every night, and then damn bright for the rest of the time. Usually after 45 to 60 days of this, if you have all females, you will be able to recognize your goal. Most indoor varieties will double or triple in size from the time when you put them on this 12-hour cycle until the time they are done. For example, a plant that is put into flowering when it is one foot tall may only reach a finished height of two or three feet, but a plant that is two feet tall when you begin flowering it could grow to be four to six feet tall and quite a large bush. Larger plants yield more buds, but take up proportionately more space and take a longer time to grow to the desired flowering size than small plants. This is why I say that your yield is based more on the amount of light in your room, not the number of plants, their size, or the amount of space they are in. (Light is usually the 'limiting factor' indoors). An easily achievable goal should be 1 pound per 1KW per crop cycle. One pound may come from two monsters that each take up half the space under a 1KW light and yield a half-pound each, or 1 pound might come from 32 1-foot tall plants that each yield only ½ ounce each but will finish in a relatively shorter time and also take less time to grow in the vegetative stage to the desired flowering size, perhaps only 6 or 8 inches. Larger yields can easily be achieved per crop utilizing certain varieties with longer flowering periods, (up to 90 days or more) but over time, your total yields will probably be about the same, because you could of had two crops of a faster, lower yielding variety in the same time. It is a trade-off no matter how you do it, it just depends upon your own ideas about what you want. It is important just to remember that assuming all environmental factors are as described, your overall yield will be determined primarily by the amount of light and also to some extent the variety or strain you happen to have.

## B. Sprouting and Cloning

I assume you have already read the section entitled "Cannabis is a Plant." If you have not, then do so now! Sprouting cannabis seeds is a simple matter. Before you plant your seeds in the soil, you should germinate them by placing them between two paper towels soaked with distilled water, placed on a plate and covered with plastic wrap. Kept in a warm, dark place, the seeds should sprout in about 3 to 7 days. Gently put the seedling, sprout-end up, about one-half to one inch below the pre-moistened soil. Cloning is a much more complicated matter. It requires either some skill, or a green thumb, or fanatical attention to detail, or a lot of trial and error, or possibly all of the above. I think of cloning as an incubation process and have decided that maintaining a constant warm temperature (75-80) is the key factor. This is the concept. Cut a small piece from an existing plant that is in the vegetative growth stage or one that has been in flowering for less than 2 weeks, (the key here is that it should not have any flowers on it) about 3 to 4 inches long. This piece must be a growing tip of the plant, not a leaf, (though a clone may have a number of leaves on it), but a piece on that new growth has been apparent at its tip. This does not mean that it has to come from the top of the plant, because on any healthy, well-established plant there should be many, or perhaps dozens of growing tips all over it. Handle this piece gently, and using a new razor blade, cut a small piece just about 1/16th of an inch from where the first cut was made, at a 45-degree angle. This exposes the moist, tender inner portion of the stem. For larger clones you may want to cut off one set of the lowest leaves also, leaving approximately 1/16th-inch stubs of the leaf stems. The razor blade can also be used to very gently scrape some of the outer skin off the lower portions of the stem that will be under the soil, again, for the purpose of exposing the tender inner portion of the stem. This should all be done as quickly as possible. Then using rooting hormone, such as Rootone Powder or Dip-n-Gro liquid (diluted 13 parts water to 1), dip the lower part (the part that has been cut and scraped, the part that will be under the soil) of the clone into the hormone and then carefully place it into a hole that was pre-poked in the media using a nail or toothpick.

You can use paper, plastic or Styrofoam cups (always poke holes in the bottom) or small buckets (less than one-half gallon) to hold the soil, or Jiffy-7 peat [moss] pellets, which are small discs that when soaked in water, expand into a cylinder that is basically just peat moss in a tiny nylon sack. These work well for larger batches because of their small size. Place the whole unit inside of some kind of humidity tent or dome, maybe a plastic Ziploc bag for one or two clones in party cups, or a 11x21 inch propagation tray for larger batches for example, to retain the moisture. Small pots evaporate quickly, and since the clone has no roots with which to draw up water, it needs to be kept in a high humidity atmosphere or it will dry out and die promptly. Absolutely the most important factor is not to over saturate the soil, it should barely feel moist to the touch. Remember- for roots to grow, they need oxygen just as much as they need water. It is as easy to kill a clone with too much water as it is to kill it by letting it dry out. Spray bottles work well to mist the clones. Place the newly planted clones under fluorescent lights on a continuous 24-hour per day light cycle. Florescents should be kept within about a foot or less from the clones for maximum effectiveness. "Cool white" tubes work very well and are very inexpensive. They generate very little heat and have soft, even light distribution. A 4-foot "shop-light" fixture can be purchased at the hardware store for less than \$10 and two tubes to fit it should run about \$1 each. This is sufficient light for two 11x21 inch (standard size) propagation trays. Each tray can hold up to about 25-30 clones in Jiffy-7 pellets. Keep the temperature steady and warm, and after about one week, if you are doing well, or two weeks if you need improvement, roots will suddenly sprout directly out of the stem and the clone will start to grow. As soon as this happens, it should be taken out of the dome, transplanted if necessary, and moved into the vegetative area, not too close to the light, not too close to the fan.

### C. Sex and sexing

The only way to tell the sex of a cannabis plant is after it has been flowering for at least two weeks. Examine the internodes, or the place where two stems meet. Two little white hairs in a "V" are a female flower, while strange-looking bunches of grape like flowers indicate a male. Make sure to cut the males as soon as they show their sex unless you want a batch of seeds with your

female buds, in which case cut all the males except for the best one (you judge) and then cut it as soon as the little grapes (pollen sacks) start to pop open. The branches of these males can be placed in water and put in a sunny window. The pollen sacks will continue to pop open for several days and you can carefully collect and apply the pollen to just the females you want to seed. Remember that there is enough pollen in a single male flower to pollinate thousands of female flowers. If you grow only females the results will be sinsemilla (Spanish word for seedless or without seed).

## 5. Limiting Factors

There are five limiting factors to plant growth. Any green plant needs all five of these things to be available to it or growth will slow or stop. Each one is just as important as the others, and more or too much of one will absolutely not make up for lack of any other. Limiting factors are each a link in the chain. The weak link is the one that is slowing the plants down. If you think you have a problem, it is most likely one of these five things.

### A. Water

Plants need water. All residential water supplies are treated with chlorine which is not good for plants. Evaporate the chlorine out of the water by leaving it in open containers such as milk jugs or barrels for 24 to 48 hours before using. The proper way to water an established plant is to saturate the soil, then do not water again until the soil feels dry at the tip of your finger poked into the soil, and the container feels light. You can tell just by watching the plants. Experienced growers who are intimate with their plants can tell that they will need to be watered 2 or even 3 days before they do simply by looking at them. Lower leaves may lose their turgidity, and the whole plant, though seemingly unaffected, may actually seem to shrink. The moment they start to droop you have waited too long. Overwatering is a most common mistake. Usually, the plant is not growing satisfactorily due to another limiting factor, and the hapless cultivator tries to give it more and more water and/or fertilizer, essentially drowning the roots and killing the plant.

### B. Light

People who are not familiar with the 1KW lighting systems that are commonly used in northwestern grow rooms are often shocked at the blinding light intensities that they can generate. Sometimes I like to turn the lights off and point out to them how dark it is without them. No man made light source will ever match the intensity of the sun. Without adequate light or light in the correct [color] spectrums, green plants will not grow. Cannabis is arguably the most light-loving plant species on the planet. A cannabis plant that does not get enough light will be sad and spindly with small leaves and buds and a lot of stem. If you follow the directions in here under 'lighting', you should not have a problem. Don't be surprised if it seems bright, it's supposed to be. In fact, I have taken to wearing mountaineering sunglasses with side panels and U.V. protection whenever I am in my grow rooms, due to the fact that I have noticed my vision deteriorate over the years, undoubtedly from constant exposure. These type of shades also have rubber hooks that go around the backs of your ears to keep them on your head when you are looking down all the time.

### C. Nutrients

Chemical fertilizers are the easiest way to maintain the nutrient needs of a large garden. These should not be associated with strange tasting or "chemical" tasting buds. Many of the best soil growers use high quality, mass produced, full spectrum nutrient formulas to produce top quality cannabis. Also the vast majority of all hydroponic gardens use full spectrum chemical fertilizers due to a lack of completely water soluble organic liquids. The only thing you can do to blow it is to overfertilize. Follow directions. Your plants will tell you when they need fertilizer. A well-fertilized plant will be dark green and vigorous, while a plant that needs fertilizer will be a slightly pale green and have yellowing leaves and slow growth. You know you fertilized at the right time if they

are back thriving in the next few days. Always remember that more fertilizer won't help if any of the other limiting factors are not taken care of. However, there is another group of people that insist that only organic nutrients, such as various guanos (a.k.a. turds), blood meal, bone meal, various seaweeds, or organic composts etc. be used to provide the nutrient needs for the very most premium flower production. I have experimented with organics and had great results, with increases in resin production (not necessarily THC production), and overall health, and also a slightly more pungent smell and sometimes slightly enhanced taste, but I believe that for the most part, these differences are extremely subtle and noticeable only to the connoisseur. For production purposes, I always end up coming back to the "grow juice" as it's called, just because it's easier. Actually, it smells better too.

#### D. Oxygen

Only the plant's roots need oxygen. They absorb it in the same way that leaves absorb carbon dioxide, and use it to build sugars and carbohydrates (grow). Oxygen is the main component of the air we breathe. This is the reason why over watering is a problem. As the soil dries out the roots are exposed to oxygen. If the soil remains saturated, the roots are starved of oxygen, suffocating, basically drowned.

#### E. Carbon Dioxide

The leaves of all green plants absorb carbon dioxide out of the air, use the carbon, and transpire the leftover O<sub>2</sub>, or oxygen, into the air. This absorption is the equivalent of our breathing, except that humans and animals absorb oxygen and exhale carbon dioxide as a by-product. One theory of why plants like you to talk to them is that they are being bathed in a stream of carbon dioxide-rich air. For cannabis, this must be similar to a pro athlete breathing from an oxygen tank. If the air in the room is stagnant the plants will quickly use up the carbon dioxide and stop growing. Adequate carbon dioxide levels can be maintained with good ventilation and by having vigorous air circulation around the plants. Carbon dioxide enrichment systems are available, but they were the first thing to go when I edited for simplicity. I'll leave them to the adventurous. I personally think that if mother nature doesn't need it, neither do I. However, I should mention that if you are using a hydroponic rockwool-based system, by adding CO<sub>2</sub> enrichment, you have essentially eliminated four out of five of the limiting factors, water, nutrients, oxygen and CO<sub>2</sub>. Using extremely high light levels in addition to this setup can result in what can only be described as "super-charging".

### 6. Potency, maturity, harvesting and drying

#### A. When to Harvest

The single most important factor in the potency of your crop of cannabis is the plants themselves. Any given clone or seedling has a pre-determined, genetically set, potential potency in its DNA. Once you have finished, dried and sampled a certain healthy, mature bud, a clone of that plant will only vary about 5 to 10 percent in potency no matter what techniques are used to grow it. Good buds are born, not made. The second most important factor is the maturity, or ripeness of the buds. As the buds get bigger and bigger, you will notice that some of the hairs (pistils) on the buds which were all white to begin with, will start to wither and turn red. When about 65 to 75 percent of the all the hairs on the buds have turned red and new growth seems to slow (usually after about 45 to 60 days in the flowering cycle for most pure indicas and 50/50 hybrids), the buds should be ripe for harvest. Something else to watch is the crystals, which should appear under a magnifying glass like tiny clear mushrooms of resin. If they begin to tint amber or yellow, it is a sign that the THC (which is concentrated 95 percent in these crystals) is starting to degrade into two less psychoactive byproducts: CBD and CBN. If you notice this happening the plant has already reached its maximum potential and should be harvested immediately unless it is very large, possibly in which case individual parts of the plant may ripen before others. Once again, every one of the infinite number of cannabis varieties is different, and with "faster" strains, (that is,

varieties that finish sooner), you have to be more careful about this over-ripening, whereas some strains seem to continue on flowering forever without ever ripening as it is described here. You just have to watch and use your good judgment. If you aren't sure, then wait. The last few weeks is the time when buds are bulking up the most weight-wise, and with a good sized crop, days can turn into extra ounces. When you have waited this long, you can wait a little longer.

## B. Harvesting, Manicuring and Drying

Harvesting is easy. Cut the plant into manageable sections and trim all the large multi-fingered leaves off of the buds. Single-fingered leaves that stick out of the thick part of the buds should be trimmed to the circumference of the bud. These trimmings, when properly dried, make good joint rolling material. When you are manicuring, you may find yourself with an unbelievably sticky coating on your fingers and scissors. This is almost pure resin, otherwise known as finger hash. If you start out with clean hands and clean scissors, you can collect this substance by gently rubbing your fingers together in small circles. Do not try to use heavy pressure between your fingers. This stuff is so sticky I have seen it take skin off. You might not mind losing a bit of skin but smoking it is no fun. Instead gentle circles will produce little tiny pieces that look like the dust from a pencil eraser. These pieces can be rolled together into small BB sized balls. Scissors can be scraped in a process a lot like pipe scraping. All of these little pieces together can add up to hours of quality entertainment for a room full of stoners, if you know what I mean. It is best to use a small piece of bud underneath these resin balls (a green screen) because like pipe resin it melts when a flame touches it and will go right through a screen. Extra stickiness comes off your fingers effortlessly with a little butter or margarine (don't try to smoke this). Hang the manicured buds on some hemp twine (like clotheslines) in the drying room. The idea of hanging is to facilitate even, thorough drying. Although they can be laid out on newspapers, I found that this leaves unsightly flat spots on the buds and they can remain wet for longer because the air cannot circulate around all sides. Keep temperatures moderate, around 75 and around 50% humidity. You may need to use a ventilation system to reduce humidity if your drying room is particularly crowded (I hope you have this problem!), or a heater if it is too cold. I recommend placing a small fan in the room to circulate the air, especially if using a heater. Usually in about seven days, your buds will be ready to smoke. Do not be fooled if after three or four days the buds feel dry to the touch. If put into bags, the moisture that remains on the inside will transpire into the outer dry parts and will result in an unacceptable degree of wetness. Now, I've really tried to keep the commentary to a minimum here, and pot knows, it's hard when you are the writer, editor and publisher, BUT, this rant I must have. Improperly dried pot is unacceptable for smoking and useless for enlightenment purposes. One of the reasons that pot is commonly sold wholesale, to smiling customers, for as much as the going rate for gold, is because the grower has had to dry it out before selling it. This drying cannot be viewed as losing money. No one should ever have to pay this amount of money for water. Drying is merely the process of evaporating water, purifying the buds down to just the essence of their remarkable existence.

As the buds dry, chlorophyll breaks down into more simple, easy-burning sugars. Harsh smoking characteristics such as a green or shakey taste diminish. The true unadulterated flavor can come through. The THC itself evaporates a water molecule, making the THC psychoactive, giving the high a greater feeling of spaciousness, enhanced perception and appreciation of beauty, as well as seemingly miraculous medical benefits. The buds attain a level of combustibility such that you will be able to crumble them into a firm, lip-smacking, even burning spliff of Rasta revelry, or receive a prompt flow of thick, cool, flavorful smoke from your favorite waterpipe, as soon as the flame touches the bud. Needless to say, the disappointment to the consumer of not being able to get stoned after finally acquiring the desired object, a bag of weed, at great time and expense to all, is definitely severe. This is compounded when you are one of the ever growing number of people who use this substance to relieve pain and suffering incomprehensible to healthy people. Dry pot is the balm of the sick, a miracle cure-all. Ask them. Every stoner knows that kind, dry buds are probably the single greatest gift to mankind ever. If you do not plan on thoroughly drying the buds you grow with every bit as much care as you took growing them, then you shall not be worthy of the title "cannabis creator" and I should now beg and implore you to: (A.) give

this guide to someone who will, or (B.) burn this guide. Why? Because I wouldn't want anyone thinking that I was associated with you. Selling undried buds, even at wholesale prices is a definite karma no-no, and smoking them is totally defeating the purpose. I know there are money hungry people out there- it's even considered normal in our materialistic consumer based society. That's the greatest thing about this occupation- you can set your own salary by growing as much pot as you want- but the way for a righteous non-greedy cannabis creator to estimate yields (and therefore profits) is simply, only on a dried basis, Thank you. This concludes The Home Cannabis creator, everything you ever wanted to know about cannabis creation but were afraid you would be detected by the power company.

Good luck and a happy high! REMEMBER, it's up to you to inform your friends, family, neighbors and co-workers that we have been lied-to, cheated, relieved of freedoms, happiness, privacy, civil rights and liberties by the WOD. Hemp prohibition is a political issue driven by big business interests and it's damn well time we turn these policies around through extreme civil-disobedience. Grow it everywhere, they can't get it all...