



Date: June 9, 2004

To: Gerald R. Miller, City Manager

From: Anthony W. Batts, Chief of Police /s/
Ronald R. Arias, Director, Department of Health and Human Services /s/

For: Mayor and Members of the City Council

Subject: SB 420 - Medical Marijuana

SB 420 was passed by the California Legislature last Fall, which established laws to govern the medical use of marijuana. The law indicates that local public health agencies will ultimately be responsible for the issuance of identification (ID) cards indicating the cardholder has a medical necessity to use medical marijuana. This bill established the law, but does not provide criteria or guidelines by which local public health jurisdictions are to distribute these medical marijuana ID cards. This law clearly states that the California State Department of Health (DHS) is the agency to develop these guidelines, after which local public health jurisdictions will be required to implement the ID card distribution program at the local level. The Governor's May Revise proposes to borrow \$983,000 from the State Health Statistics Special Fund to implement SB 420. That loan will have to be approved by the State Legislature for the program implementation to commence in the next fiscal year (after July 1, 2004). It will be the responsibility of DHS to establish the criteria to identify those who are under medical care and are legally prescribed marijuana by licensed medical practitioners. Apparently a fee will be established as a part of this implementation to support this program in the future.

Another State law (AB 487) took effect in 2000, requiring all California doctors to participate in mandatory training in pain management and end-of-life care. This training is an attempt to standardize proper treatment for patients in pain and entering end-of-life, according to established experts in these fields. AB 487 training forms the standard with which the medical community will measure competent pain management. Before marijuana will be considered appropriate, other medications may need to be tried after a very thorough examination for pain management assessment.

The Long Beach Department of Health and Human Services (Health Department) will not implement the SB 420 ID cards until after receiving DHS guidelines. The Health Department will also have to be in compliance with AB 487 with respect to pain management. Marijuana may be prescribed for purposes other than pain management; however, we will also require confirmation that such treatment is consistent with medical standards of care in those specialty areas.

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The City Attorney's Office has issued a legal opinion regarding possession of medical marijuana. Based on their recommendations and current law, the Long Beach Police Department is reviewing its policy related to this issue. This review involves input from the State of California and the Los Angeles District Attorney. It is anticipated that the process will be completed by the end of the year. At that time the Police Department will provide a follow-up report to the City Council. If you have any further questions, please contact Commander J.J. Craig, Chief of Staff at extension 87301 or Dr. Darryl Sexton at extension 84013.

healthdept

Marijuana.mem3

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BOARD OF SUPERVISORS

COUNTY OF SANTA CRUZ

RESOLUTION NO. 2004 - _____

**RESOLUTION ENACTING MEDICAL MARIJUANA GUIDELINES FOR THE
IMPLEMENTATION OF PROPOSITION 215 [HS 11362.5] AND SB 420 [HS 11362.7]**

WHEREAS, in 1996 the voters of the State of California approved Proposition 215, also known as the Compassionate Use Act of 1996, creating Health and Safety Code 11362.5; and

WHEREAS, HS 11362.5(d) states, "Section 11357, relating to the possession of marijuana [cannabis], and Section 11358, relating to the cultivation of marijuana, shall not apply to a patient, or to a patient's primary caregiver, who possesses or cultivates marijuana for the personal medical purposes of the patient upon the written or oral recommendation or approval of a physician." and

WHEREAS, since the 1970s, medical marijuana patients in the federal IND program have received and smoked approximately 6.5 pounds of dried cannabis per year, thereby establishing a safe and effective dosage for a chronic daily use patient to possess and consume; and

WHEREAS, some patients require more than that amount of cannabis bud per year, especially when it is eaten, used in tincture, used topically or by methods other than being smoked; and

WHEREAS, 3 pounds of dried cannabis bud per year is a reasonable compromise safe harbor amount that allows most compliant individuals to cultivate, possess and consume their medicine; and

WHEREAS, a 100 square foot canopy of mature female cannabis plants, typically will yield 3 pounds of dried and processed cannabis bud per year outdoor; regardless of the number of plants, and

WHEREAS, successful propagation, breeding and cultivation of cannabis may require large numbers of plants in various stages of growth, especially when grown in the indoor "Sea of Green" method which typically produces lower yields than outdoor gardens but affords multiple harvests per year; and

WHEREAS, in 2003, Senate Bill 420 created HS 11362.7 that, among other things, sets forth in HS 11362.77(a) an impractical default threshold for immunity from arrest at 8 ounces of dried female cannabis flowers in addition to 6 mature or 12 immature plants per qualified patient; and

WHEREAS, HS 11362.77(c) empowers this jurisdiction when it states that "Counties and cities may retain or enact medical marijuana guidelines allowing qualified patients or primary caregivers to exceed the state limits set forth in subdivision (a)"; and

WHEREAS, other counties and cities throughout the State of California have enacted or retained guidelines for the implementation and enforcement of HS 11362.5 in amounts that are significantly greater than the threshold amounts set forth in HS 11362.77(a); and

WHEREAS, failure to enact a community standard for presumed compliance with HS 11362.77 may effectively limit local patients and caregivers to the arbitrary and unreasonable amounts as set forth in HS 11362.77(a), thereby causing undue pain, suffering and legal risks; and

WHEREAS, pursuant to HS 11362.775, qualified patients and caregivers "who associate within the State of California in order collectively or cooperatively to cultivate marijuana for medical purposes,

shall not solely on the basis of that fact be subject to state criminal sanctions under Section 11357, 11358, 11359, 11360, 11366, 11366.5, or 11570." and

WHEREAS, law enforcement officers require a simple, reasonable and efficient guideline to use in evaluating individual and collective patient medical marijuana gardens and on-hand supplies; and

WHEREAS, this resolution does not address the enforcement of federal law.

THEREFORE, BE IT NOW RESOLVED that this County Board of Supervisors does hereby enact the following medical marijuana guidelines for qualified patients or primary caregivers within its jurisdiction per HS 11362.77(c):

- A) A qualified patient, a person holding a valid identification card, or the designated primary caregiver of that qualified patient or person may possess and cultivate any amount of marijuana consistent with the patient's medical needs.
- B) Possession of up to 3 pounds of dried cannabis bud or conversion per patient shall not constitute probable cause for arrest or prosecution of any person listed in (A).
- C) To obtain that amount, any person listed in (A) may also cultivate up to 99 cannabis plants per patient with not more than 100 square feet of total garden canopy, measured by the combined vegetative growth area. Gardens that are consistent with this provision shall not constitute probable cause for arrest or prosecution.
- D) Qualified patients, caregivers and providers who collectively or cooperatively cultivate marijuana for medical purposes shall not exceed the standards set forth in (B) and (C).
- E) Any person listed in (A) and having a physician's assent that this guideline is not adequate for the qualified patient's medical needs may possess and cultivate an amount of cannabis up to six pounds of bud or conversion and up to 200 square feet of canopy.
- F) As defined in HS 11362.5, "Primary caregiver means the individual designated by the person exempted under this act that has consistently assumed responsibility for the housing, health or safety of that person." For purposes of this policy, a primary caregiver shall include any adult designated as such in writing by a qualified or card-holding patient, in the interests of their personal health and safety.
- G) For purposes of identification, such designation shall be posted at the garden site or in the possession of the caregiver, along with a copy of the physician's document.
- H) Law enforcement shall not arrest persons who are compliant with these provisions, and shall leave them, their medical marijuana supply and their garden unmolested. Amounts in excess of those above shall be preserved in usable form in case it need be returned.

PASSED AND ADOPTED this _____th day of _____, 2003 at a regular meeting of the _____ County Board of Supervisors by the following vote:

Diana Lejins
Advocates for Disability Rights
POB 14446
Long Beach, CA 90803

June 15, 2004
LB City Council Meeting

Good Evening Honorable Mayor Beverly and City Council Members:

At 64 years young, my mother was diagnosed with a fatal carcinoma of the liver. She had bravely survived breast cancer and removal of her eye for a deadly melanoma. But at 64 years of age, this cirrhotic cancer would prove to be her last valiant struggle.

Mom was totally deaf and relied on me for translation. I was very involved in her treatment. It literally tore my heart out to see her suffer through chemotherapy and the sickening nausea. They pumped her full of morphine and other drugs that lost their effectiveness over time--her torment grew worse. After nine months of my watching my mother waste away, she finally passed on. It still brings tears when I think of her. It was 14 years before the Compassionate Use Act for medicinal marijuana.

During my mother's illness, I felt helpless and frustrated, unable to do more because of senseless laws that denied access to medicine that could have eased her agony-- marijuana. And, I become very angry when innocent victims, afflicted with some dreadful disease or disability, are denied anything that could ease their pain and suffering. To incarcerate these patients is a cruel travesty of justice.

The current Long Beach Police Department policy requires that patients be arrested. We ask that you put a stop to this heartless persecution here and now. We are not asking you to make law, just to abide by existing California law. This issue affects all of us—we are all going to die one day!

Just as the police expect citizens to obey laws; so do citizens expect the police to do the same. The LBPD must create policy that complies with California law and Federal Court decisions. And, as our signs say, we ask you to STOP TERRORIZING OUR PATIENTS!

We wear green and ask for a moment of silence for my daughter who has MS and in memory of those who have suffered needlessly or died in senseless agony without their choice of medication...

Thank you

Cannabis Yields and Dosage



**The Science and Reason of Safe Access Now
Medical Marijuana Garden Guidelines**

Chris Conrad

Court-qualified cannabis expert

Creative Xpressions • El Cerrito CA USA

Cannabis Yields and Dosage

The Science and Reason of Safe Access Now Medical Marijuana Guidelines

By Chris Conrad*

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* Chris Conrad has qualified as an expert on cannabis cultivation, yields, consumption, and medical marijuana in the superior courts of no fewer than 30 California counties and two federal jurisdictions.

He is author of *Hemp: Lifeline to the Future* and *Hemp for Health*.

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NOTE TO PUBLIC OFFICIALS: This document explains the basis for a scientific and reasonable policy that protects the interest of a large majority of medical marijuana patients. It has been prepared as an explanation of how medical marijuana is cultivated and used in California in support of the adoption of the Safe Access Now medical marijuana guidelines described herein. Adopting the SAN guidelines will protect patients and caregivers, help police enforce the law, and protect the county from liability for the loss of medicine and false arrest of qualified individuals. Safe Access Now extends an offer of support to any official seeking to implement this policy, including a supply of these booklets for use as needed.

WARNING TO PATIENTS AND CAREGIVERS: This handbook is based on scientific and legal findings. It is not yet statewide policy. Some counties adhere to the Safe Access Now guidelines, such as Sonoma and Humboldt. However, many local jurisdictions have politically-motivated enforcement guidelines that are not scientific nor in the spirit of the law. While this handbook may help you to gauge a patient's dosage or a garden's yield, the underlying policy may not be accepted by your local law enforcement or courts. If you are confronted by police, you may show them this document but never talk with police until after you consult an attorney. Anything you say can and will be used against you. If you need an attorney or expert to defend your situation in court, contact Chris Conrad or Safe Access Now for a referral. Websites: <http://www.chrisconrad.com> <http://www.safeaccessnow.net>

Marijuana is medicine with a safe and effective dosage as demonstrated by the US government's IND Program

Cannabis: a federally grown medicine provided in smoked dosages by NIDA

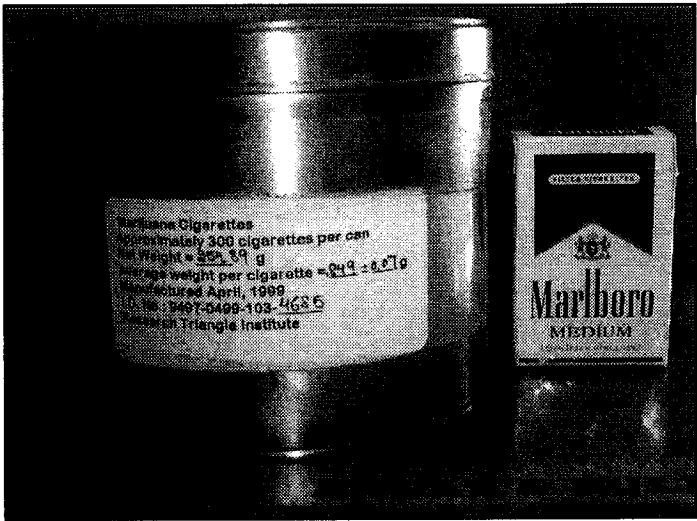
Cannabis is not a cure for injury or disease, it is a treatment for symptoms. The medical record of its use goes back some 5,000 years. There is an approved standard dosage for smoked medical marijuana (*Cannabis sativa*) the National Institute on Drug Abuse provides by prescription to patients in the federal Compassionate Investigational New Drug (IND) program. It is mailed in canisters of 300 pre-rolled cigarettes, to be smoked at a rate of 10 or more per day. This comes to about two ounces of cannabis per week — a half-pound every month.

“Marijuana, in its natural form, is one of the safest therapeutically active substances known to man.”

— DEA Administrative Law Judge Francis Young

Docket No. 86-22. 1988.

This long-term dosage has proven to be safe and effective, with no unacceptable side effects. As seen in Table 1 below, from the *Journal of Cannabis Thera-*



This 6-inch diameter canister held 254.89 grams of federal medical marijuana for an IND patient. The average monthly supply mailed from the federal cannabis research garden is equivalent to 15 packs of cigarettes per patient.

peutics, the annual dose comes to between 5.6 and 7.23 pounds of cannabis bud mixed with some leaf. The documented federal dosage averages 8.24 grams per day, or 6.63 pounds smoked per year.

* The Investigational New Drug (IND) program is overseen by National Institute on Drug Abuse: NIDA

Table 1: Chronic cannabis IND* patient demographics

Patient	Age / Gender	Qualifying Condition	IND Approval / Cannabis Usage	Daily Cannabis / THC Content	Current Status
A	62 F	Glaucoma	1988 25 years	8 grams (0.28 oz) 3.80%	Disabled operator / singer / activist / vision stable
B	52 M	Nail-Patella Syndrome	1989 27 years	7 grams (0.25 oz) 3.75%	Disabled laborer / factotum / ambulatory
C	48 M	Multiple Congenital Cartilaginous Exostoses	1982 26 years	9 grams (0.32 oz) 2.75%	Full time stockbroker / disabled sailor / ambulatory
D	45 F	Multiple Sclerosis	1991 11 years	9 grams (0.32 oz) 3.5%	Disabled clothier / visual impairment / ambulatory aids

Source: Russo, Mathre, Byrne, Velin, Bach, Sanchez-Ramos and Kirlin. *Journal of Cannabis Therapeutics*, Vol. 2(1) 2002. p. 3-57. Page 9.

Using a chronic daily dosage of medicinal cannabis; Why 3-6 pounds is a reasonable personal supply

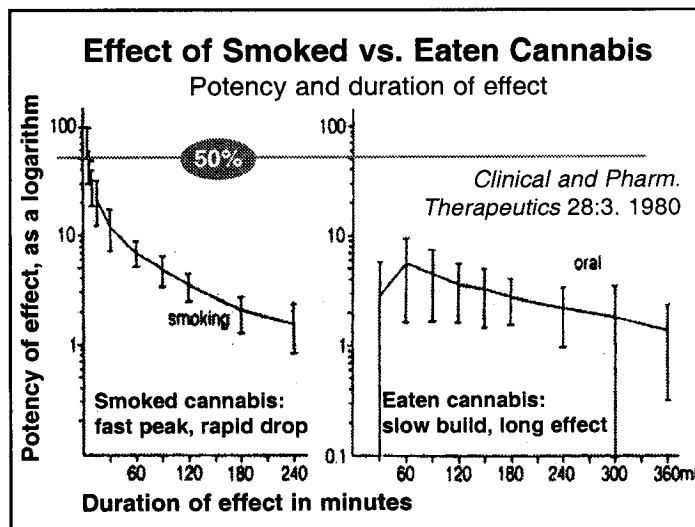
What is medical marijuana, how do patients commonly use it?

The phrase "Medical Marijuana," as commonly used, refers to the cured, mature female flowers of high-potency strains of the herb *cannabis sativa*. Since a patient can't simply go to the pharmacy to get this medicine, they must stockpile for future need.

"Its margin of safety is immense and underscores the lack of any meaningful danger in using not only daily doses in the 3.5-9 gram range, but also considerably higher doses."

— David Bearman, M.D.

Most people are familiar with the use of smoked marijuana for symptomatic relief of chronic and acute health disorders, but there is much more to know about this traditional herbal remedy. Since cannabis is an annual plant, it is reasonable to consider its use in terms of annual dosage. Many patients need three pounds of bud or more per year. Some chronic (daily) use patients smoke 6, 9, 12 pounds or more per year, but dosage varies with each person and how they consume it. Potency



diminishes with age, but it can be stored in a cool, dry, dark place for several years without significant loss of effect. Potency is one factor, but other concerns are involved, as well.

Health conditions may improve or get worse periodically or cyclically, causing usage to rise or fall. Some require daily and multi-daily dosages. Chronic pain patients tend to use larger amounts. Conditions like glaucoma or MS may require continuous use to prevent attacks. Acute and terminal patients may use less, but all patients need to obtain and possess an adequate supply for some period of future need.

The means of ingestion affects patient dosage. Smoked cannabis provides rapid delivery. Most patients consume it this way, but some wish to avoid the health risks of smoke. "Vaporizing" it (heat without combustion) may require twice as much. NIDA estimates that eating requires 3 to 5 times the smoked dosage. This means that a patient who smokes one pound per year needs four pounds for the same effect if they eat it, although often it is a combination of the two. When eaten, cannabis' effects are spread out over a longer period of time (see graph above). This may be particularly good for sleep or situations where smoking is impractical or impossible, but due to the delayed onset and various metabolic activity, eating is hard to titrate. Consumable goods spoil over time, there is a learning curve on preparing recipes, and not every experiment produces usable medicine. Making kief, hash, tinctures, oil, extracts and topical salves and liniment all require ample amounts of cannabis.

Table 2: Daily Smoked Dosages

One ounce per month, 12 ounces per year, roughly equates to a single cigarette of less than 1 gram per day.

The national average weight of a cannabis cigarette ranges from 0.5 to 1 gram each, according to NIDA, the federal National Institute on Drug Abuse.

Some medical marijuana patients consume small cigarettes to conserve their medicine, but for a patient who consumes one gram cigarettes, an ounce (28.5 grams) offers less than one cigarette per day for a month. Furthermore, stem and possibly seed must be cleaned out of cannabis before it is used. A patient who gets 24 cleaned grams per ounce can roll 30 cigarettes at 0.8 grams each, one per day for a month. However, many patients must smoke throughout the day, so we come to the next level.

Three to five average-size cannabis cigarettes per day comes to about one ounce a week, or 3.25 pounds in a year.

Obtaining medical marijuana — from the ground up

Grow, sex, harvest, cure, manicure, store and titrate

It begins as seedlings or cuttings. Later, male plants are culled from the garden. Females grow to full maturity before being cut down and harvested. About 75% of fresh plant weight is moisture and lost in the drying process. Of the remaining plant matter, almost half is stem and about a quarter (18% to 28%) is medical-grade, cured and manicured bud.

This bud portion of the plant has a concentration of resin glands that contain cannabinoids, the active compounds. Since different kinds of cannabis have distinct medical effects, the genetics are important. Breeding is preferably done through selection from among very large numbers — hundreds or even thousands — of individual plants.

"In strict medical terms marijuana is far safer than many foods we commonly consume.

For example, eating 10 raw potatoes can result in toxic response. By comparison, it is physically impossible to eat enough cannabis to induce death."

— DEA Administrative Law Judge Francis Young

Docket No. 86-22. 1988.

Among the ways cannabis is consumed are:

Inhaled: smoked or vaporized

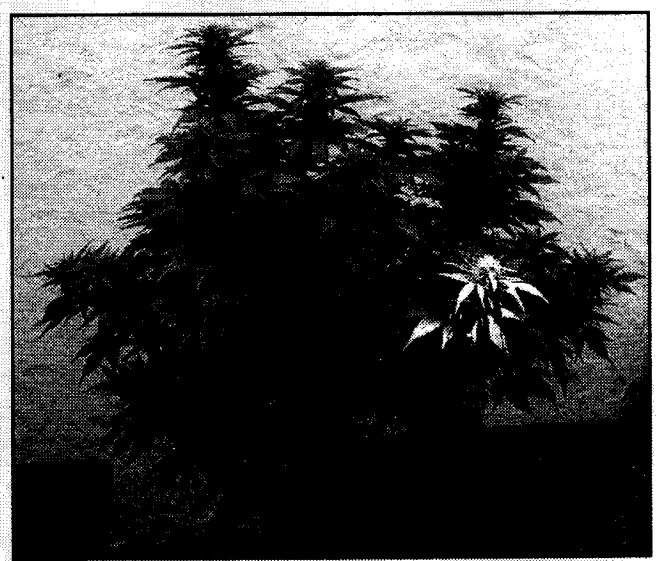
- Bud, the dried, manicured mature female flower
- Kief, the powdery resin glands of the plant
- Hashish, compressed resin glands
- Oil, liquefied resin glands
- Inhalers (not available in USA)

Eaten: orally ingested

- Tinctures drinking alcohol-based, by the dropper
- Butter, used for cooking or baking
- Pastries, most common cannabis delivery foods
- Mari-pills (encapsulated cannabis in oil)
- Dronabinol (marinol, synthetic THC)

Topical use: external application

- Tinctures, isopropyl alcohol-based
- Liniment, isopropyl alcohol- or dmsa-based
- Salves, cream or oil based



Mature female cannabis plants, like the one shown above, yield buds with the concentrated medicinal compounds. Male plants are unusable, and so are promptly removed and destroyed unless pollen is desired to produce seeds. It typically takes months for female plants to mature after the first appearance of their flowers.



"Only the dried mature processed flowers of female cannabis plant or the plant conversion shall be considered when determining allowable quantities of marijuana under this section."

— California Health and Safety Code 11362.77(d)



While a typical cannabis cigarette weighs from 0.5 to 1.0 grams, patients often consume larger sizes. The example shown here weighed 1.6 grams.

Federal study links garden yields, canopy measurement

Table 3: Average cannabis yields at maturity for high planting densities

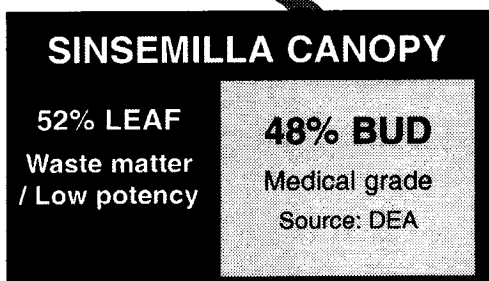
Sponsor	Year	Density	Yield*	Seed Stock
Univ of MS	1985	9 ft ²	222 grams	Mexico
Univ of MS	1986	9 ft ²	274 grams	Mexico
DEA	1990	18 ft ²	233 grams	Colombia
DEA	1991	9 ft ²	215 grams	Mexico



*Yield = Oven dry weight of usable **leaf and bud** from mature 120 day or older plants.

Source: Table 1, *Cannabis Yields*. US Department of Justice (DOJ), Drug Enforcement Administration (DEA), 1992. Page 3.

Ratio of sinsemilla bud to leaf, excluding stems and branches, derived from DEA data.



Canopy is the term to describe all the foliage (leaf and bud) produced by growing plants. The area filled in by the foliage is called canopy cover. Restricting total canopy area limits the garden yield to a reasonable level, regardless of the number of plants or which gardening method is used.

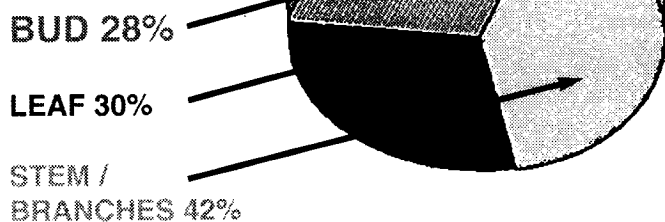
The Drug Enforcement Administration (DEA) conducted research at the University of Mississippi with the National Institute on Drug Abuse (NIDA) that was published in the 1992 DOJ report, *Cannabis Yields*.

Its field data indicate that for each square foot of mature, outdoor plant canopy yields just under one half-ounce of air-dry cannabis bud. This figure is consistent with reports from growers and gardens seized by police.

No matter what the skill level of the gardener, the larger the area cultivated, the larger their yield will be.

DRY SINSEMILLA CANNABIS COMPONENTS

Source: *Cannabis Yields*.
US DOJ/DEA. 1992.
Figure 2, page 5.



PERCENT OVEN DRY WEIGHT FOR 90 DAY OR OLDER PLANTS WHICH DID NOT HAVE ANY SEED DEVELOPMENT

DRY SEEDED CANNABIS COMPONENTS

DRY WEIGHT FOR 120 DAY OR OLDER PLANTS WITH SEEDS

STEM/BRANCHES 43%

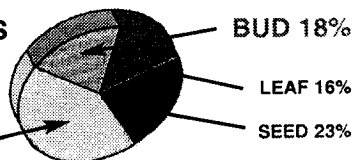


Table 4: Bud yields of sinsemilla (unseeded) cannabis per square foot of plant canopy
(Calculated from the DEA data above)

222 grams x 0.48 = 106.56 g	
(3.76 oz) ÷ 9 ft. =	0.41 oz/ ft²
274 grams x 0.48 = 131.52 g	
(4.64 oz) ÷ 9 ft. =	0.51 oz/ ft²
233 grams x 0.48 = 111.84 g	
(3.95 oz) ÷ 18 ft. =	0.21 oz/ ft²
215 grams x 0.48 = 103.2 g	
(3.64 oz) ÷ 9 ft. =	0.40 oz/ ft²

Mean average canopy area:
11.25 square feet per plant

Mean average bud yield: 4 oz per plant

**Mean average fully dried bud yield:
0.38 ounces per square foot***

* If you compensate for rounded plant shape and natural moisture, this comes to about 1/2 ounce of air-dried and cured cannabis bud per square foot of harvested canopy. This yield is consistent with reports from private growers.

A further discussion of the federal yield study, and the realities of patient and caregiver gardens

Not all patients are trained botanists, not all gardens have ideal conditions

The NIDA field data has a solid scientific basis, but does not necessarily reflect the realities a medical marijuana patient or caregiver may face in obtaining medical-grade cannabis. While this yield estimation process is a reliable basis for a mature female garden grown in optimum conditions, several key factors need to be clarified:

- Both seeded and sinsemilla cannabis was grown, using seeds from several varieties.
- Only mature female plants were considered in the yield. On average, half the cannabis plants grown from seed will be males with no medical marijuana potential. The male plants were removed before the NIDA garden calculations were made.
- Only healthy plants were considered. Plants that were sick or died were excluded, but in a real garden this problem is a persistent factor.
- The NIDA garden was grown in ideal conditions with full sunlight and fertile, loose, well-drained soil. Many patient gardens are partially shaded or rely on local soils of uncertain pH and quality.
- Trained botanists were on hand at all times to maintain the NIDA garden. Most patients and caregivers are self-taught, rely on books and may not always have access to expert advice.
- No loss to theft or police.
- Field data contradict the speculative figures on p. 10.

Some gardens produce less than average yields, and some patients need to grow or store more than a year supply at a time over security issues or as a hedge against crop failure.

It's not easy to grow quality medicine. Deer, rodents and snails snack on young plants and can destroy an entire garden. White fly, spider mites, mealy bugs, thrips, aphids and scores of other insects feed on cannabis. A power failure can wipe out an indoor crop. Molds and mildew may attack a crop at any time, but are most common just before harvest. Female plants may suddenly grow male flowers and become hermaphrodite. When seedless (sinsemilla) cannabis goes to seed, the quality drops and net yield of bud goes down by a third (see chart, page 2). Table 5, taken from the DEA study and examined below, shows that some big plants produce an eighth of an ounce per square foot. After you remove seeds, it is only a tenth of an ounce per square foot: 1/5 as much bud as the area is projected to yield, i.e., 500 square feet to obtain 3 pounds of bud and 1000 square feet for 6 pounds.

Table 5: Big plants can have reduced canopy yields

Source: *Cannabis Yields*. US Dept. of Justice, Drug Enforcement Admin. 1992. p. 3

Average Cannabis Yields at Maturity for Low Planting Densities

Sponsor	Year	Density	Gross Yield*	Seed Stock
DEA-A	1990	81 ft.sq.	777 grams (27.3 ounces)	Mexico
DEA-B	1990	81 ft.sq.	936 grams (32.8 ounces)	Mexico
DEA-C	1990	81 ft.sq.	640 grams (22.5 ounces)	Mexico
DEA	1991	72 ft.sq.	1015 grams (35.6 ounces)	Mexico
DEA	1991	36 ft.sq.	860 grams (30.2 ounces)	Mexico

* Yield = Dry usable leaf and bud from mature 120 day or older plants.

Calculations using the DEA canopy yield formulas

NIDA leaf and bud totals	Sinsemilla bud yield	Clean seeded bud
DEA-A 27.3 ounces foliage	x 0.48 = 13.1oz ;	x 0.32 = 8.7oz
DEA-B 32.8 ounces foliage	x 0.48 = 15.7oz;	x 0.32 = 10.4oz
DEA-C 22.5 ounces foliage	x 0.48 = 10.8oz;	x 0.32 = 7.2oz
DEA 35.6 ounces foliage	x 0.48 = 17.0oz;	x 0.32 = 11.4oz
DEA 30.2 ounces foliage	x 0.48 = 14.5oz;	x 0.32 = 9.7oz

Yields of cannabis bud per square foot based on the field data

NIDA leaf and bud yields	Sinsemilla bud yield	Clean seeded bud
27.3 ÷ 81 sq' = 0.34oz/sq'	x 0.48 = 0.16oz/sq' ;	x 0.32 = 0.11oz/sq'
32.8 ÷ 81 sq' = 0.40oz/sq'	x 0.48 = 0.19oz/sq' ;	x 0.32 = 0.13oz/sq'
22.5 ÷ 81 sq' = 0.27oz/sq'	x 0.48 = 0.13oz/sq' ;	x 0.32 = 0.09oz/sq'
35.6 ÷ 72 sq' = 0.49/sq'	x 0.48 = 0.24oz/sq' ;	x 0.32 = 0.16oz/sq'
30.2 ÷ 36 sq' = 23.9g/sq'	x 0.48 = 0.40oz/sq' ;	x 0.32 = 0.27oz/sq'

Indoors or out, it takes about 200 square feet of garden canopy to obtain six pounds of cannabis bud per year

OUTDOORS

The garden grows together throughout the season.

The 100 square feet of mature female canopy is harvested at one time with a typical yield of 50 ounces (3.125 pounds) of cannabis bud for the entire year.

Outdoor plants typically yield more bud and one harvest per year. Indoor plants yield less with more harvests.

Why use the average? Some harvests are better than others for each grower. Some growers get better yields, others worse, but most fall in the middle.

Outdoors: There is only one harvest per year, and the plants are killed at harvest. To obtain 3 pounds of prepared cannabis bud from 100 square feet of canopy requires a yield of 0.48 ounces per square foot. While the DEA data show an average of 0.38 ounces per square foot, that is oven-dried. Using better genetics, good growers can often harvest a half-ounce air cured bud per square foot.

Outdoor plants have a longer growing season and more room, so they tend to be larger. Plant canopy need not be continuous. A backyard garden often has various sized plants scattered over a wide area. Measure each plant canopy and add the total to find the most likely yield of any garden; for example, 11 round plants each having a 42" diameter (9 square feet of canopy) would cover 99 square feet: a reasonable garden size.

Indoors: While an indoor garden is typically harvested three times a year, its annual yield can be about the same as outdoors. The personal indoor garden typically fits into one or two average size rooms using electric lamps, fans and standard garden supplies. It requires a barrier between the vegetative and flowering areas because cannabis plants are light sensitive. As such, only part of an indoor garden is used for flowering at any given time. The rest is nursery and vegetative area that does not produce bud. If half a 100 square foot canopy is used to obtain medical marijuana three times a year, 150 square feet of bud is harvested annually. Also, the typical indoor yield range of 0.25 to 0.5 ounces

INDOORS

About half the area is used for flowering to obtain bud

The other half is for vegetative plants used to supply the flowering area

per square foot gives an average harvest of 0.38 ounces. So 150 square feet per year averages 56.25 ounces, just over an ounce per week. This allows the patient to obtain a small buffer against adversity — insect pests, mold or other problems.

"Using a halide [1000 watt lamp] for every 50 square feet, growers harvest a quarter to a half ounce of bud per square foot."

— **Ed Rosenthal, cultivation expert and author**
Marijuana Question? Ask Ed. Quick American. 1987. Page 22

Once a patient has an adequate supply, they can periodically shut down their flowering area and keep the nursery going for future use.

What's the big deal about 99 plants? Since a few large cannabis plants can out-produce hundreds of small ones, the number of plants in a garden does not indicate potential yield as well as does canopy. We can estimate a garden's yield without counting plants or knowing if they are seedlings, cuttings, etc.

The limit of 99 plants is to keep the garden below a 5-year mandatory federal sentence on 100 plants and keep it under state jurisdiction if it goes over.

What if the garden is too large? Half the cannabis plants grown from seed tend to be males that are worthless for medical marijuana. That's why outdoor canopy should not be evaluated until the flowering cycle is fully underway, usually late August. After that, males are usually eliminated, giving a better sense of the likely mature female canopy.

Most patients have difficulty in gauging their likely yield, so barring clear evidence of sales or illegal diversion, even seemingly large gardens may be honest efforts to comply. Any excess bud or garden canopy should be accompanied with a physician's written authorization if possible.

SAN Garden Guidelines are easy to use and follow ... All you need is a tape measure to check the canopy.

The bigger the plant or garden area, the bigger its total yield

Consider the overall plant and garden shape, layout and canopy density, then do the math.

If a garden is rectangular and densely filled-in (no gaps or open areas), measure the length and width and multiply to find square footage. Some examples: 4'x8' bed = 32 ft². 4'x25' = 100 ft². 8'x12.5' = 100 ft².

If a garden is rectangular and mostly filled in, but has pathways or gaps, calculate the overall area in square feet and subtract open spaces to find net square footage. Example: 12'x12' greenhouse = 144 ft², subtract 44 ft² open space = 100 ft².

If a garden is irregular in shape or plants are scattered about an open area, measure individual plant diameters or patches of area that the plants occupy, not the open space between them. Calculate and repeat for each plant or patch; add for garden total.

Outdoor Example

Aerial view,
looking down
at a cannabis
plant

A single plant with
a rounded canopy
30" in diameter
covers almost 5
square feet of area



Example: Plant diameter 30"
Area = π (pi) x radius squared
Find radius: $30 \div 2 = 15$ "
Area = $\pi \times (15 \times 15)$
 $A = 3.14 \times 225 = 706.5$ sq. in.
 706.5 sq in $\div 144^* = 4.9$ sq. ft
Result: canopy = 4.9 sq. ft.

Short cut: Diameter = 30"
Area = diameter sq. x 0.7854
Diameter sq. = $30 \times 30 = 900$
 $900 \times 0.7854 = 706.86$ sq. in.
 $706.86 \div 144^* = 4.9$ sq. ft.

*1 square foot = 144 square inches

Indoor Example



$8 + 24 + 32 + 32 = 96$ sq. ft.

Nursery: Starter plants
(seedlings or clones) in a
4'x2' in trays = 8 square feet

Mother plants in a
6'x4' area = 24 square feet



Vegetative plants in a
4'x8' tray = 32 square feet

Flowering female plants in a
4'x8' tray = 32 square feet



Fewer large plants or more small plants can fit into any given area

Humboldt County District Attorney Paul Gallegos offered the following reference list for the number of plants of approximately similar sizes to fit within 100 square feet of canopy:

- 1 plant at 9-11' diameter each
- 2 at 7-8' diameter
- 3 at 6' diameter
- 5 at 5' diameter
- 7 at 4' diameter
- 14 at 3' diameter** (typical outdoor girth)
- 33 plants at 2' diameter
- 99 plants at 1 foot diameter.

Most gardens naturally comprise a combination of plants of various sizes. For example, a mature outdoor garden might typically hold 2 plants at 4' diameter, 6 at 3' diameter, 4 at 2' diameter and 12 at 1' diameter and harvest 92 square feet. A typical indoor garden might include 12 flowering plants in 32 sq' area, 24 vegetative in 32 sq', 4 mothers in 24 sq', and 48 starters in 8 sq', for a garden total of 88 plants in 96 square feet.

#23
77
June 15, 2004

Honorable Mayor, City Council, and fellow citizens:

This is a request for an urgency ordinance.

The urgencies are as follows:

1. The Long Beach Police Department's policy in regard to medical marijuana violates the legal, civil, human and constitutional rights of seriously ill and disabled citizens of Long Beach. It should be suspended now!
2. The Long Beach Police Department has deprived seriously ill and disabled citizens who assert their legal rights of the police protection due all citizens. By enforcing zero tolerance, a federal drug war tactic, patients are left to defend themselves when their homes and gardens are attacked by neighborhood thugs and gangsters. If they choose to call police they are left with the same results, thus denied the vital services and protection of the Long Beach Police Department.
3. Clearly, the facts show that this policy is a malicious attempt to promulgate fear and terror in seriously ill, legal patients, to discourage and undermine their rights in the furtherance of a failed drug war agenda.
4. "Imagination is more important than knowledge." This quote appears at the bottom of an official Long Beach PD training bulletin. As a former correctional officer with Los Angeles County and military policeman I have read many training bulletins and standard operating procedures. Nothing extraneous is included and nothing is included without purpose.
5. This request represents the exhaustion of all known administrative remedies.