Plant growth stimulation secrets

Accelerated plant growth effects of Imploder water

A growth experiment compared the growth of white mustard seeds in a tap-watered control group with an identical setup using tap-water put through the implosion device. The Imploder watered group demonstrated an increase in germination rate from 63% to 83% (a 20% increase), and yielded a 328% increase in biomass over a period of 31 days as compared to the control group.

lant growth gets the red light from Showa Denko
07 Apr 2009
The Japanese LED maker has developed high-performance 660 nm chips that accelerate plant photosynthesis.
Showa Denko K.K., a Japan-based LED maker, has started selling samples of AlGaInP (aluminum gallium indium phosphide) LED chips that emit red light with wavelength of 660 nm. This, says the company, is the optimum light for accelerating the growth of plants.more

11 MAR, 2013
McGill University graduate students set out to revolutionize the greenhouse industry with innovative high-yield, energy efficient lighting

Commercial greenhouses provide significant benefits over traditional outdoor crop growing, particularly in cool climate countries such as Canada. They allow for year-round crop production while protecting plants from the harsh environment, pests and diseases.
But one of the biggest costs greenhouse operators face is for the energy required to run their lighting systems. Many greenhouses use inefficient electric lights to compliment light from the sun, particularly in winter.

more

plants against drought, diseases, and other stresses

•Brand-new biotech product(from Russia) showing universal growth stimulation on all investigated plants. Efficiency of Albit has been confirmed in more than 500 field trials on 60 agricultural crops

•Albit increases yield of wheat by 16.5%, rice by 19.3%, maize by 11.6%, potato by 20.0%, soybeans by 19.6%, sugar beet by 16.2%, kidney bean by 16.3%, vegetables by 12.0-23.4%, vine and horticultures by 8.5–15.6% on average*

•Albit increases plant drought- and heat-resistance by 10-60%

•Albit is well-compatible with standard chemical treatments, relieving pesticidal stress on agricultural crops. Addition of Albit to herbicides increases yield averagely by 16.6% over control treated with pure herbicides

•Albit increases yield quality (content of gluten in wheat, oil in rapeseed), reduces mycotoxin contamination

•Scientific institutions and other organizations that confirmed the high efficiency of Albit

Click below for article on:

Use of Lighting to Accelerate Crop Timing

By
Erik Runkle and Matthew Blanchard
A240C Plant and Soil Sciences
Department of Horticulture
Michigan State University
East Lansing, MI 48824

Hydrogen Sulfide Greatly Enhances Plant Growth: Key Ingredient in Mass Extinctions Could Boost Food, Biofuel Production

Apr. 17, 2013 — Hydrogen sulfide, the pungent stuff often referred to as sewer gas, is a deadly substance implicated in several mass extinctions, including one at the end of the Permian period 251 million years ago that wiped out more than three-quarters of all species on Earth.

But in low doses, hydrogen sulfide could greatly enhance plant growth, leading to a sharp increase in global food supplies and plentiful stock for biofuel production, new University of Washington research shows.

"We found some very interesting things, including that at the very lowest levels plant health improves. But that's not what we were looking for," said Frederick Dooley, a UW doctoral student in biology who led the research.

Dooley started off to examine the toxic effects of hydrogen sulfide on plants but mistakenly used only one-tenth the amount of the toxin he had intended. The results were so unbelievable that he repeated the experiment. Still unconvinced, he repeated it again -- and again, and again. In fact, the results have been replicated so often that they are now "a near certainty," he said.
more

Accelerated plant growth effects of Imploder water

A growth experiment compared the growth of white mustard seeds in a tap-watered control group with an identical setup using tap-water put through the implosion device. The Imploder watered group demonstrated an increase in germination rate from 63% to 83% (a 20% increase), and yielded a 328% increase in biomass over a period of 31 days as compared to the control group.

An independent experimenter investigated the accelerated plant growth effects of Imploder water whereby 30 white mustard seeds were planted in each of two identical growing mediums. One was fed tap water, and the other with the same tap water that had been cycled through the Imploder device. Several positive effects were observed.

- After 4 days the tap water control group had 11 un-germinated seeds and a growth score (consisting of number of seedlings times their respective lengths) of 8. Whereas the Imploder watered group has 6 un-germinated seeds and a growth score of 20. See data below.

Tap Water 30 seeds	Magnet Water 30 seeds
11 un-germinated	5 un-germinated
10 partially germinated	6 partially germinated
7 one-inch	6 one-inch
0 two-inch	3 two-inch
0 one and half inch	3 one and half inch
2 half inch	7 half inch
$7 + 2/2 = 8$	$6(1) + 3(2) + 3(3/2) + 7/2 = 20$

It can be concluded that the Imploder increases both germination speed and ultimate germination percentages.

After 31 days post germination, the Imploder watered group looked substantially larger, more advanced in their growth and healthier. (See photo below taken after 31 days.)

Then the plants in each group were uprooted, the soil carefully removed and the plants weighed.

Photo 1 ' Growth after 9 days post germination. Imploder water on the right, tapwater control on the left.

Photo 2 ' Growth after 23 days post germination.

Photo 3 ' Growth after 31 days post germination. Note that there was a 328% increase in biomass in the Imploder watered group with respect to the control tap watered group. Our understanding of why this happened has encouraged us to proceed with developing this leading edge water treatment technology to enhance the world's ability to grow food and other useful plants in a healthier, faster, and more sustainable way.

Referenced Products:

The Super Imploder
The Triploder

Test Results & Testimonials:

- Plant Growth

http://theimploder.com/test-results-testimonials/plant-growth/accelerated-plant-growth-effects-imploder-water
5/25/2016

The secret to fearless pruning; 5 steps to prune like a pro

BY JOE LAMP'L ON FEBRUARY 25, 2015

Pruning Primer: From Newbie to Ninja

Every gardener has heard that pruning is important. But getting out in the garden and actually doing it is a frightening challenge to many. After all, you've worked and waited so long to get those trees and shrubs to grow; now you're going to lop off some of that hard-earned plant growth?!?

It may seem counterintuitive, but the fact is this:

One of the very best ways to stimulate a plant to grow is to cut it back. Sometimes WAY back.

Pruning controls a plant's size and shape. It removes dead or diseased branches or limbs. It improves overall structure and health by allowing more light and air into the center of the plant. But, yes, strategically cutting a plant also encourages new growth or flowering. It's addition by subtraction… and while that may not make much sense from a mathematical perspective, the science behind it will make you a believer once

you see the amazing results.

Inside a plant's terminal buds and growing tips, a hormone called *auxin* is stored. Auxin's job is to suppress the growth of other lateral buds below. Think of it as a traffic cop, holding back a line of cars. Only when the traffic cop is gone can those cars that have been waiting on stand-by race onto the freeway.

Remove a plant's growing tip by pruning and you also remove the auxin. The nearby plant buds are no longer suppressed and will grow rapidly in response to the auxin's sudden absence. If leaf buds are present on both sides of the branch, you'll likely get two or more new branches for each one that's cut.

But make no mistake: pruning isn't an endeavor to be taken lightly or attempted haphazardly. Once a limb is severed from the plant, there's no going back. And making that first cut can be intimidating- downright terrifying- even to veteran gardeners. So here are five steps to help you overcome your fear of pruning, taking you from a newbie who's afraid of the blade to a ninja who wields the steel with utmost precision and skill.

1. Choose your moment wisely.

There's a time for everything, and some seasons of the year are better for pruning than others. If you're simply trying to remove dead or diseased branches, go for it whenever the mood strikes. Otherwise, factor in the following considerations.

Anvil style pruners like these cut and crush. They're best used for clean up of dead limbs and branches.

Late winter/early spring– just prior to new growth starting to develop- is generally the best time to prune. Although pruning does stimulate new growth, this doesn't apply during dormancy. Most plants and trees utilize stored energy from fall and winter to produce new growth just below the pruning cut when conditions are favorable in spring, once the temperatures and day length signal the appropriate time.

The exception is for trees known for heavy sap flow, like walnut, maple, birch, and chestnut. With these

varieties, excessive sap can bleed out of a pruning wound and result in potential stem dieback. Wait to prune these trees in summer, when the leaves will draw sap past the cut, reducing the chances of excess moisture at the wound.

Early/mid-summer– after full leaf expansion- is an acceptable time to prune. Be aware, though, that much of a plant's stored energy is already gone, used to produce new spring growth. Cut this new growth off now, and it's wasted. Yes, you will stimulate the plant to put out more new growth, but this extra demand can be stressful to the plant in the summer months, when conditions are likely to be dry and hot and the plant's reserves are at a premium.

Early/mid-fall is the least favorable time to prune. Pruning now can encourage the plant to produce new growth just as it is sending nutrients and energy into reserves for the cold months to come. Re-routing those reserves can result in new growth that's weak and more susceptible to damage or death by the colder temperatures. And that creates the perfect access point for over-wintering pests and diseases, especially for evergreens.

2. Know the rule of thumb for your flowering shrubs.

Certain shrubs bloom on new wood, producing flowers on the current season's growth. Examples include abelia, clethra, and certain hydrangea varieties like Annabelle. These plants should be pruned in late winter; they will produce flowers the same year. For more on this as it pertains to butterflybush, check out my most-read post of all-time.

Other shrubs produce flowers on old growth, wood from the previous year. Azalea, rhododendron, holly, forsythia, and some hydrangea varieties like oakleaf, paniculata, and mophead are all in this category.* Pruning these in late winter would remove all the new flower buds that were formed after last year's flowering. Shrubs blooming on old wood should be pruned immediately after flowering and before new buds are set.

*Yes, I know that some of you have pruned your mophead/French hydrangeas in spring and still had flowers that summer. It happens; it's just not the norm.

3. Have the right equipment.

Whether a small handheld tool or long-handled loppers, your pruners will be one of two main cutting styles: bypass or anvil.

Bypass pruners (L) are best for cutting live plant material vs. Anvil style (R) which is best for cutting dead wood

Bypass pruners use a blade that passes by a non-blade part in a cutting action similar to scissors. This type of pruner is best for live plant material when a clean cut is essential and you don't want to crush the remaining portion of the plant. Personally, I use my trusty Felco #2 bypass pruners (the ones on the left in the above picture) for almost all of my pruning tasks.

Anvil pruners use extra force to squeeze the branch or limb as a blade passes through the plant and stops against the other side of the tool. These are best for cutting dead limbs or when you're not worried about crushing or damaging the remaining plant material.

4. Pick the place.

As in real estate, it's all about location, location, location. If you cut too far away from the bud, that new growth you're hoping for may never be stimulated. Cut too close to dormant leaf buds and they may be damaged to the point that they won't recover and sprout at all.

To promote new growth, use bypass pruners to make a clean, angled cut about 1/4 to 1/2 inch above an outward facing bud.

For branches with a single bud below your cut point, select a spot on the branch about a quarter- to a half-inch above an outward-facing bud and make the cut at an angle with the high point facing outward.

For stems or branches with buds located in pairs (opposing one another on each side of the branch), make the cut straight across- with no angle- about a half-inch above the bud pair.

5. Know your limits.

How much is too much to prune? That question and a full explanation of your options is easily its own blog post for another day, a good guideline for live plant material is one-third. Measuring from the tip back, take no more than one-third of a total branch or total plant at any one time. True, some plants respond better than others to more severe pruning, your chances of overdoing it are greatly reduced if you stick to this one-third rule.

There is no need to fear pruning. Once you understand that in most cases, pruning is advantageous to the plant, then it's simply a matter of getting started. The more you do it, the more confidence you'll have about it. And before you know it, you'll be pruning like a pro.

Now I'd love to hear from you. Are you a prunaphobic? A wannabe pruning ninja? What's holding you back from joining the ranks of the fearless black-belt pruner?

http://www.growingagreenerworld.com/how-to-prune-like-a-pro/

New discovery could stimulate plant growth and increase crop yields, researchers say

January 13, 2014

Scientists led by experts at Durham University have discovered a natural mechanism in plants that could stimulate their growth even under stress and potentially lead to better crop yields.

Plants naturally slow their growth or even stop growing altogether in response to adverse conditions, such as water shortage or high salt content in soil, in order to save energy.

They do this by making proteins that repress the growth of the plant. This process is reversed when plants produce a hormone - called Gibberellin - which breaks down the proteins that repress growth.

Growth repression can be problematic for farmers as crops that suffer from restricted growth produce smaller yields The research team, led by the Durham Centre for Crop Improvement Technology, and including experts at the University of Nottingham, Rothamsted Research and the University of Warwick, have discovered that plants have the natural ability to regulate their growth independently of Gibberellin, particularly during times of environmental stress.

They found that plants produce a modifier protein, called SUMO that interacts with the growth repressing proteins.

The researchers believe that by modifying the interaction between the modifier protein and the repressor proteins they can remove the brakes from plant growth, leading to higher yields, even when plants are experiencing stress.

The interaction between the proteins can be modified in a number of ways, including by conventional plant breeding methods and by biotechnology techniques.

The research was carried out on Thale Cress, a model for plant research that occurs naturally throughout most of Europe and Central Asia, but the scientists say the mechanism they have found also exists in crops such as barley, corn, rice and wheat.

Corresponding author Dr Ari Sadanandom, Associate Director of the Durham Centre for Crop Improvement Technology, in Durham University's School of Biological and Biomedical Sciences, said the finding could be an important aid in crop production.

Dr Sadanandom said: "What we have found is a molecular mechanism in plants which stabilises the levels of specific proteins that restrict growth in changing environmental conditions.

"This mechanism works independently of the Gibberellin hormone, meaning we can use this new understanding for a novel approach to encourage the plant to grow, even when under

stress.

"If you are a farmer in the field then you don't want your wheat to stop growing whenever it is faced with adverse conditions.

"If we can encourage the crops to keep growing, even when faced by adverse conditions, it could give us greater yields and lead to sustainable intensification of food production that we must achieve to meet the demands on the planet's finite resources."

Explore further: **How plants learned to respond to changing environments**

More information: Small Ubiquitin-like Modifier Protein SUMO enables plants to control growth independently of the phytohormone Gibberellin, Conti, L, et al, published in *Developmental Cell*, Volume 28, Issue 1, Manuscript 2850

-the keys to stimulating their growth is to help them to absorb water and nutrients faster.
-innovative organic solutions.

Grower’s Secret™, Inc. and Proteus Environmental Technologies, LLC Complete Acquisition of Midwestern BioAg, Inc.

Grower’s Secret and Proteus invest in the future of biological agriculture.

San Francisco (June 24, 2014) – Grower’s Secret™, Inc. a Hawaii-grown company and Certified B Corporation, specializing in organic plant growth enhancers and eco-friendly fertilizers, announces the closing of a strategic acquisition of and investment in Midwestern BioAg, Inc. Midwestern BioAg, founded in 1983 and headquartered in Blue Mounds, Wisconsin, has developed methods to increase soil fertility that translate into fewer inputs, greater yields and increased grower profits. The investment led by Grower’s Secret, Inc. (GSI) and managed by Proteus Environmental Technologies, LLC (Proteus) has acquired a controlling interest in Midwestern BioAg with plans for infusing up to $20 million in growth capital into the business to execute on the first stage of a national and global expansion.

“Grower's Secret is very pleased to have partnered with Proteus to complete this transaction with Midwestern BioAg,” said Chaz Berman, CEO of Grower's Secret, Inc. “As the sole initial investor, we have committed substantial capital resources towards the acquisition and expansion of Midwestern BioAg. After several years of developing our own channels with commercial agriculture and gardeners of all kinds, we are excited to support the growth of Midwestern BioAg and the propagation of more efficient biological farming methods which optimize soil inputs and crop outputs to the benefit of the environment and the bottom line.”

A leader in biological agriculture with a 30 year history, Midwestern BioAg has developed a base of over 3,500 customers in 23 states, providing a comprehensive mix of products and services that allow farmers to gain the full range of benefits of biological farming. Midwestern BioAg has current sales of over $30 million, both direct and through a network of independent dealers. With the infusion of capital and additional talent Midwestern BioAg plans to increase its reach through expanded sales efforts, acquisitions and strategic partnerships.

“Midwestern BioAg’s approach raises yields, lowers unit costs, improves nutritional quality and reduces environmental impacts, making farming more profitable and sustainable at the same time,” said Dr. Tony Michaels, new CEO of Midwestern BioAg. “Midwestern BioAg has been a leader in creating a path to more sustainable agriculture. With this expanded team and new resources, it is our intent to extend that leadership to reach more farms, more crops and more sectors of society.”

Midwestern BioAg ‘s founder and father of biological agriculture, Gary Zimmer, will continue his role as President and member of the board of Midwestern BioAg, Dr. Michaels will also join the Midwestern BioAg board. Michaels was the co-managing director of Proteus Environmental Technologies, LLC. Proteus, based in El Segundo, California, finds and commercially develops transformative environmental technologies. Chaz Berman, CEO of GSI, will join the Midwestern BioAg board, and Albert Pleus, Chairman of GSI, will also join Midwestern BioAg‘s board as Chairman.

“Our mission aligns well with that of Midwestern BioAg, as we aim to improve people's lives, repair the earth, and provide healthier products and foods to tables globally,” said Albert Pleus, Chairman of GSI. “Grower’s Secret enables both traditional and organic growers, plus all kinds of gardeners, to increase the yield and strength of their crops. We are excited to take this step with Midwestern BioAg and see a great opportunity to cross-pollinate customers, products and strategies between GSI and Midwestern BioAg while growing a world-class company.”

Grower’s Secret™ celebrated 15 years of operations in 2013. It discovered, developed, patented, and is now commercializing organic plant growth enhancers and fertilizers for a number of distribution channels: agriculture, horticulture, indoor gardening, lawn and garden dealers, including big box retailers. The company’s premier product, Grower’s Secret Professional, is derived from one of the best examples of symbiosis in nature between a specific fungus and its host tree. These plants have developed the ability to help each other prosper during eons of existence. Grower’s Secret developed a process to extract this material, which signals a plant to live up to its potential, grow bigger, faster, and produce, larger, and more uniform crops. Grower’s Secret Professional is made from 100% edible materials, and it is OMRI (Organic Materials Research Institute) and

– See more at: http://www.growerssecret.com/about/press-release#sthash.yA5rIvBR.dpuf
–

Now for Something Completely Different

2012-01-03 - Advanced Indoor Growing

Have you been growing for a while? Are you at the stage where no matter which new nutrient, additive or growing method you try, you just can't seem to better your last yield? Think you've got the most out of your growing environment? Maybe it's time to try something completely different.

In this installment of 'Grow with Little Lebowski', we look at a few techniques for the advanced gardener. By advanced gardener I don't just necessarily mean those of you who have grown for years, tried different methods of cultivation - from hand-watering to hydro - and can consistently get good yields from your environment. I'm talking about those of you who have your grow room 'dialed in' and are willing to try something a little bit new; those of you willing to take a risk or two in pursuit of the highest possible yield and, most importantly, because you are curious to see what will happen if you push your plants (and yourself).

Exploit plant stress to increase flowering sites

So, all the growers out there who are reliant on the grow room to pay your bills may want to look away now, or just read on and get a friend to try out these techniques. Only the risk takers and thrill seekers out there - with a spare lamp just crying out to be used - need apply.

For those of you who are still with me, keep an open mind. We'll start with simple (as in relatively easy to understand and achieve) concepts and work our way up to the more challenging stuff. Fire up a fun stick, something clear and uplifting, and read on....

Play at Nature

In an indoor garden, you control and manipulate every element that your plants need to develop (if ever there was an ideal hobby for someone with a god complex, it's home growing) and this level of control can, in theory, extend to taking charge of the seasons. To an extent if you are growing now you are already doing this. Think about it: when you switch your lighting to 12/12 you force your plants to flower by reducing the amount of ‘daylight' hours they receive, fooling them into thinking the colder weather is on the way and it is time for them to reproduce.

“If ever there was an ideal hobby for someone with a god complex, it's home growing.„

What happens when you take this one step further? What happens if you do bring on the ‘cold weather'? There are two possibilities here: one relates to increasing the yield and the other relates to bringing the crop to an early finish, without reducing quality.

Nighttime Temperatures

The difference between day- and nighttime temperatures is referred to as the DIF and it is widely agreed that increasing the DIF has a positive effect in steering most plants towards flowering. When growing indoors it is pretty straightforward to record day and night temperatures using a simple max./ min. thermometer. It is also straightforward to drop the night temperature, because the biggest source of heat - the lamp - is off during the night period.

During the veg stage, you will achieve optimum growth by keeping the DIF constant. Use a fan heater, or similar, to raise the night temperature once the lamp is off. Measure your minimum night temperatures and set the heater on a timer to warm the grow room throughout the ‘lights off' period.

For the flowering stage, the optimum DIF is around 46.4º - 50º F (8º - 10º C), so if your maximum day temp is around 82.4º F (28º C), aim for a night temperature of around 64.4º F (18º C).

This drop in temperature forces sugars held in the plant towards the buds. This is because as the air temperature cools, the plant will cool with it. The leaves hold less mass than the buds and therefore cool at a quicker pace, causing the sugars held in them (which they have been producing all day) to be moved to the flowering sites, where they advance bud growth.

Bring on the Autumn

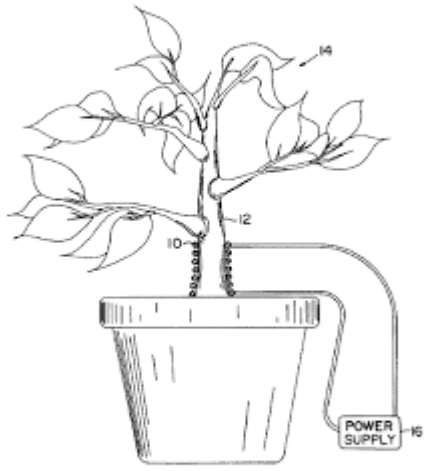
Otherwise known as 'vernalization', this technique can be utilized to deliberately finish a crop early without compromising too much on the quality of the end product. Certain plant species actually require a period of cold temperatures to induce flowering; for example, strawberries in the garden will only start to produce fruit after the cold ‘snap' in winter. However, for the majority of plants - the good lady, Cannabis, included - cold periods will cause pigments (green-colored chlorophyll) in the leaves to retract; this is why certain strains of Cannabis will turn purple or blue if grown in colder conditions.

During the flowering period, buds require more and more sugars to develop properly and reach full potential. These are created via

Method of stimulating plant growth

U.S. Patent Oct. 13, 1998 5,819,467

Method of stimulating plant growth



Abstract

A conductive helical coil is spaced around the stem of a growing plant, and alternating current is passed through the coil to induce an electromotive force in the stem and stimulate growth.

Inventors: Zucker; Jonathan M. (Charleston, SC)

Appl. No.: 08/769,304
Filed: December 19, 1996

I claim:

1. A method for stimulating the growth of a growing plant, said method comprising the steps of disposing a helical conductive coil having a number of turns around the stem of a plant within four inches of said stem, and passing an alternating electrical current through the coil in the order of about 0.5 to about 3.5 amp turns to produce an induced electromagnetic force in said stem and to stimulate growth of said plant.

Description

BACKGROUND OF THE INVENTION

This invention relates to the regulation of plant growth by electromotive forces, particularly induced electromagnetic forces.

It is generally known that many types of life forces are affected by electrical phenomena. For example, proposals have been made to pass electrical current through the soil to regulate the growth of plants.

SUMMARY OF THE INVENTION

It has been found that passage of alternating current through a coil disposed closely around the stem of a living plant, and thereby subjecting the plant stem of induced EMF, results in significant modification of growing characteristics, with the plant growing taller and larger, with more numerous and larger leaves, under otherwise normal growing conditions .

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1. An elevational view of a plant having a coil around the stem and connected to a current supply.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As shown in FIG. 1, a helical conductive coil, generally indicated at 10 and shown in vertical cross-section is disposed around the stem 12 of a growing plant 14 above ground level, with the ends of the coil 10 being connected to a source of alternating current 16 at low amperage. The coil may be preformed on a tubular form in the shape of a helix and may be provided with an inner and outer support to be shape retaining. The coil may be placed around the plant shortly after germination. In the alternative, a coil may be wound around the stem or base of a plant beneath the foliage. The distance between the coil and stem is preferably kept at a minimum, with the radial distance between the plant stem and newly installed coil being less than four inches and most preferably, less than one inch.

The number of turns employed in the coil 10 has not been found to be critical. Also, the use of low currents are sufficient to significantly alter the growth characteristics of the plants tested, and current flow in the order of from at least 0.5 and preferably from about 0.5 to 3.5 amp turns has been found to be sufficient, with the term "amp turns" being defined as the number of loops in the coil multiplied by the current amperes. The coil is preferably activated continuously but also may be activated on a periodic basis.

Upon activation of the current supply source 16, alternating current is applied to the coil 10 to provide a field around the coil and induced EMF to the stem of the plant. It is believed that the induced EMF causes enhanced electromagnetic pumping of nutrients in ionic form through the stem and into the leaves and also increases ionic interactive chemical activity.

In comparison with plants grown under the same conditions and time period, which receive no exposure to electrical stimulation, plants treated by the process of the present invention are taller and fuller, with more dense foliage, larger leaves and more layers of leaves.

Potential uses of the present invention, for example, include accelerated hydroponic or greenhouse growth of fruits, flowers and vegetables, accelerated germination of seeds and initial growth of transportable seedlings, and controlled growth of plants in commercial or residential environments.

In the case of newly germinated seeds, improvements in growth characteristics and leaf and branch

development become noticeable in several days, and the EMF treatment can continue until the seedlings are ready for replanting, usually within several weeks. While rapid development of seedlings and small plants under controlled conditions is a preferred application, the treatment is believed to be applicable to all plants having roots and a stem allowing deployment of the helical coil.

In further illustration of the present invention, the following example is given.

EXAMPLE I

Eighteen induction coils having ten loops of #124 gauge insulated wire (16 inches long) per coil were prepared. Thirty-two bean seeds of the same variety were planted in individual containers in the same batten of potting soil and placed under artificial light sources (light bulbs) such that the plantings would receive the same degree of light radiation on a continuous basis. Each of the plantings were provided with equal amounts of moisture and nutrients on a daily basis.

Of the above plantings, sixteen were used as controls and received no electrical stimulation. For the remainder, upon germination, a coil was placed around each seedling, and the ends of the coil were connected to a power supply providing an equal amount of alternating current to each coil at 60 Hz at about 2 amp turns. The coils for eight of the plants were provided with current in one direction and the coils for the others were provided with a current flow in the opposite direction.

The growth of the control plants were compared with the plants subjected to induced EMF over regular intervals. The EMF stimulated plants had a taller average height than the control plants and had more dense foliage with larger and more layers of leaves. The stimulated plants had at least 25% more leaves and branches than the control group after a two week period of growth under identical growing conditions.

http://biogenesislab.blogspot.com/2007/01/method-of-stimulating-plant-growth.html
Accessed: 5/25/16

How To Grow Huge Marijuana Buds

Robert Bergman
55 Comments
Beginner Guides, Sexing, cloning and harvesting
29 October 2012

In this article we will discuss:

- **What are buds**
- **Male buds vs. female buds**
- **Speeding up bud growth**

- **The best nutrients**
- **How much light**
- **Carbon dioxide**
- **Temperature and humidity levels**
- **When to prune**
- **When to harvest**
- **The best genetics**

If you really want to maximize the outcome of your harvest, you are going to need to figure out a few things. You'll need to be able to identify the type of marijuana plants you are growing, and then know exactly where and how to increase growth.

The bud of a marijuana plant is the prized appendage that appears after a plant enters the flowering stage of its life cycle. The leaves of the marijuana plant contain THC, but the buds of female plants are the most potent product by far. So as an individual grower, it's important to focus a significant amount of attention on the buds of your crop.

If you do it right, you can accomplish incredibly huge buds with a high THC content. This guide will equip you with the knowledge you need to accomplish that goal. Keep reading and learn to grow huge marijuana buds.

What are buds

Before you can grow huge marijuana buds, you need to have a bit of background knowledge. For starters, a bud is the growth that pops up during a plant's flowering phase. Although marijuana plants' leaves also have a THC content, the buds have a far more concentrated amount. This is why the buds are the prize possession of any marijuana grower – they are the part of the plant that gets you high. While both male and female buds contain plenty of THC, there are some important differences that distinguish the two.

Back to top

Male buds vs. female buds

Plenty of people seem to believe that male plants don't produce smokeable buds at all. While it's true that female buds contain the most THC levels, male buds are also quite potent and able to be smoked. Male buds look like round flowers that are jam packed with pollen. Be careful that your males don't pollinate your females because your plants will start producing seeds and less THC. I only grow males to produce seeds and remove them from my female plants.

Download my free marijuana grow guide at this link for more tips

Female buds will start showing up about two weeks later than male buds, and they start out as growths that are round, white-colored, and hairy. They show up on the very tip of every branch, as well as at the top of the plant. If treated well, the smallest buds on your female plants will grow to be longer than two inches.

Since female buds really are the cream of the crop, you are going to want to ensure that their buds get as large (and potent) as possible. The best way to achieve this is simply by getting them to grow at a faster rate. The faster they grow, the more time they have to become huge. Read the article Male or female marijuana plants for more information about sexing plants

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Speeding up bud growth

Once it has entered the flowering stage, the number one thing to speed up your plant's bud growth is to remove any dying leaves. These leaves can be identifying by their yellowing color. They are a lost cause, and they are using up your plant's energy and resources that could be focused on bigger and better things (namely, the buds). Take away the yellowing leaves to conserve these resources.

Instead of discarding these leaves, keep them and cure them properly. They have a high enough THC content that you can smoke them in case you run out of weed or while you are waiting for the big harvest.
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Another way of saving and focusing your female plant's energy is by topping it. This is a form of pruning that requires you simply cut off the topmost buds. You can take this bud home to cure and smoke already, and in the meantime the remaining buds will grow even faster. Some growers swear by this every year to achieve bigger and more potent buds by the time the harvest rolls around.

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The best nutrients

If you want your buds to be fat and juicy, you are going to have to spoil them a bit. Take special care of them during the flowering phase of the plant's life cycle. What buds crave most of all is phosphorous, so try a mixture of 10% nitrogen, 30% phosphorous, and 10% potassium (commonly referred to as NPK 10-30-10) to curb those cravings. This high amount of phosphorous is rather difficult to come by in today's world, but mixing wood ash with water should do the trick.

Of course, the other elements of keeping healthy plants in general also come into play with growing big buds. Proper amounts of water and light, along with temperature and good genetics will all affect the way your buds grow. Read the article Best fertilizers for marijuana plants for more info on nutrients. For the best result, you can just use the special formula from the Marijuana Booster system, a complete nutrient kit for up to 20 plants.

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How much light

One of the most surefire ways of increasing your bud growth is by increasing the intensity of the light that is hitting your plants. If the light is not intense enough, your plants will have stretched themselves upwards during their vegetative state, becoming tall and skinny rather than short and bushy. This is not ideal for a decent harvest.

This is, of course, only possible to change effectively when you have an indoor grow room. If you are an indoor grower, it is a simple matter of moving the lights closer to your plants. If your plant has already grown uneven colas because of poor lighting during its vegetative state, it will be difficult to evenly and effectively distribute the light. The buds themselves should have direct exposure to the light for best results. Read more about Marijuana grow lights if you're growing indoors

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Carbon dioxide

If you increase the amount of CO2 that your plant is receiving, you will essentially be "feeding" them more, allowing their growth to be sped up even further. Adding CO2 nicely complements increasing light intensity, since it basically is expanding your plant's ability to use light. CO2 alone will not increase the yield. The more light and CO2 your plant gets, the more efficiently it will grow. This will also keep your plant from ever getting too much light since the added CO2 will increase its light capacity.

Although it's pretty tricky to ever reach the light threshold, this is yet another way to "hack" your plant's speed of growth. If you do decide to pump extra CO2 into your grow room, be sure to seal it off properly – although it works wonders for plants, high levels of CO2 can be

very dangerous for humans. Read the article Growing marijuana with CO2 for more info

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Temperature and humidity levels

Temperature and humidity need to be at the right level for your plants to reach their highest budding potential. If the temperature is too high, your buds won't have as potent of an aroma. Controlling your temperature can mean controlling the amount of potency and smell of your buds – when done properly. Make sure you pay special attention to your grow room's temperature throughout its entire life cycle. If you do this, the results will definitely be to your liking. Read more about temperature or humidity

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When to prune

Many growers swear by “training” their plants. Training means bending, netting, or topping your plants in order for them to receive light in the most effective and even way possible. Training can include forms of pruning, but you don’t always need to use a blade to properly train your plants.

“LST” (low-stress training) is a way of training that doesn’t include any cutting. It is a way of manually manipulating your plants to grow flatter and wider rather than skinny and tall. It uses bending techniques that anyone can do (but proceed with caution, as with anything).
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LST is effective because it trains the plant to grow in a way that will maximize its intake of light. Every leaf that is exposed adds another source of energy to your plant so you can see why it is an effective technique. LST generally begins at a younger stage of life, before the plant has established its own shape. Another form of LST is called Screen of Green, and includes a net. The net (or screen) keeps your plants where you want them, and maximizes your plants’ use of the indoor growing space.

These forms of training can all be helpful in improving your plants’ yield, starting from an

earlier stage of your plant's life. Even if you are a veteran grower, trying a new training technique might be a great way of improving your yield significantly. Read the article How to prune marijuana plants for a list of all pruning techniques like topping, low stress trainging, super cropping and monster cropping

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When to harvest

Ultimately, one of the most important factors in having the most potent and biggest buds possible is to harvest at the right time. You need to make sure you have let your buds become as ripe as possible before harvesting. Sometimes the amount of growth in a bud's final two or three weeks can be as much as a 25% increase. In other words, by harvesting too early you could sacrifice a huge amount of weed. In general, the best time to harvest falls within a window of two or three weeks. Harvesting before this window of time would greatly reduce your overall yield, and will result in less potent weed.

You can also choose to harvest a bit earlier or later according to the type of high you would like to achieve. Earlier harvests generally get a more energetic buzzing high, while later harvests end up with a very relaxed high. For more harvesting tips read How to harvest marijuana plants

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The best genetics

Once again, genetics is everything. No matter what you do to increase the yield, poor genetics will prevent a good harvest. If you did choose marijuana seeds with great genetics, you will be pleased with the end result. Luckily, most strains that people buy today generally have very high yields and potency, which would not have been the case ten years ago. These strains will grow with fewer problems and will end up with plenty of happy, fat, potent buds.

All in all, the most important way you can increase your yield is by investing early on in a high-quality strain. It may seem expensive, but the payoff is well worth the upfront costs. Do your research and pay the money, because the result will be amazing. Check my seed shop to make sure you buy high quality marijuana seeds

Thanks for reading. Please leave comments or questions below and don't forget to download my free grow bible

Robert

http://www.ilovegrowingmarijuana.com/grow-huge-buds/

Growing Passionfruit Vines

Passiflora Edulis And Passiflora Edulis F. Flavicarpa

Growing passionfruit is too difficult here, they told me. The climate is too harsh, the soil is too poor, the termites will eat them, a wilt disease or the nematodes will get them...
That was disheartening, because in most of Australia**passionfruit is dead easy to grow**.

I have to admit that my climate and soil **do** present extreme challenges. I usually say, "If I can grow it, anybody can!"
Well, I did eventually work out **how to successfully grow passionfruit**, even here. Very successfully! Passionfruit is one of the fruits that I give away by the shopping bag full. My kitchen bench is always full of them when they are in season, my fridge is full, the freezer is full of pulp, and I still eat last year's when next year's crop starts.
I do have a little secret to growing passionfruit so successfully, beyond the growing methods that I explain below. I share that secret on the page where I talk about passionfruit in permaculture designs.

How To Grow Passionfruit Vines

What is passionfruit? What do passionfruit vines look like?

Photo by Beeep

I've been asked about growing passionfruit trees. Well, you already know it from my headline, **the passionfruit is a climbing vine**. More precisely, it is a very vigorous and fast growing climbing vine. Passionfruit vines have large, three lobed leaves, little tendrils that wrap themselves around whatever they can get hold of, and the most gorgeous flowers of all fruits in my garden. (Ok, after pineapples.)
The fruit is either yellow or purple(depending on the variety, see below), round, and about five to eight cm across. It has a smooth, thick, pithy rind, filled with sweet, aromatic pulp, juice and seeds.

Passionfruit vines climb up any support, readily and rapidly, and they climb as high as they can.

Passionfruit Varieties, Tropical Passionfruit

There are two main passionfruit varieties. (There is also a bunch of lesser known passionfruits and related granadillas.)
***Passiflora edulis* is the purple passionfruit, *passiflora edulis f. flavicarpa* is the golden passionfruit, also called tropical passionfruit.**
The purple passionfruit is a native of Brazil. Nobody knows where the tropical passionfruit originated. The tropical passionfruit is slightly bigger, and slightly more acidic. Purple passionfruit is sweeter.
Commercial growers in cooler climates often use hybrid varieties of the purple and golden passionfruit. That way they get a plant that tolerates cooler weather. (The hybrids have all kinds of fancy names, SuperSweet, Lacey, Purple Gold etc.)
The variety Panama confuses people, because it can be purple. However, Panama is a true tropical passionfruit of the type flavicarpa (which is usually golden). It is also called purple flavicarpa or Panama Red. Even though it seems to be a mix, it is not a hybrid!

If you live in a truly tropical climate you are obviously best of with a flavicarpa variety. They don't call them tropical passionfruit for no reason...
In a climate with cooler winters you want a purple passionfruit(*P.edulis*), or even a hybrid cultivar.
My climate is tropical and I grow the tropical kind, both golden and purple flavicarpa.

What do passionfruits like and dislike?

Like all fast growing plants passionfruit needs a lot of nutrients. That lush green foliage has to come from somewhere, it can not materialise out of nothing. So passionfruit vines need fertile soils, probably additional fertiliser, and they appreciate all the compost and mulch you can spare.
They also need full sun, a warm climate, and protection from wind. A sunny, sheltered site in a frost free climate is ideal. There are some purple varieties that can handle the odd very light frost. And sometimes, even though the top of a vine is killed by frost, the roots reshoot. However, the warmer the climate, the easier it is to grow passion fruit.
Passionfruit need something to climb over. A fence, a water tank, a trellis, anything will do. Watch where you plant them, because they will be up in the crown of a nearby tree before you know...
Passionfruit plants have a vulnerable root system. A healthy soil, teeming with worms and microbes and lots of organic matter is your best bet. If your soil is poor you will get problems with wilt diseases, root rot and nematodes. Heavy clay soils also cause problems with rot diseases.
Watering: the root system of passionfruits is small for the size of the plant it has to sustain. Especially while a passionfruit is fruiting it needs a lot of water. It needs a very regular water supply at all times. However, passionfruit can't handle waterlogged soil. Make sure your site is free draining.

Growing Passionfruit Seeds

If I can grow something from seed I will. If I can grow something from the seed of store bought fruit, even better. Why spend money on a nursery plant if you don't need to?
Growing passionfruit seeds is not hard. The seed just needs to be fresh. For some reason old seed takes a lot longer to germinate. So buy some nice passionfruit, separate half a dozen seeds from the pulp, and plant them as soon as possible. They take about ten to twenty days to germinate.
If you buy your seed then it's likely older, so be prepared to wait. Old passionfruit seeds can take months to germinate. The best way seems to be to just put them in the garden and leave them be, and eventually they come up. Or not.
There are some tricks like soaking the seeds in warm water first, and some people swear by vinegar. Others report their acidic soil seems to do the job. I believe in fresh seed. Whenever I used fresh seed it came up without problems.

Reasons to not grow passionfruit from seed.

Seeds of hybrid varieties do not grow true to type. If you live in a cooler climate the passionfruit you buy may be a hybrid variety. If you grow that seed you don't know what you'll get...
Find out what the fruit is that you buy, buy seed so you know what you are planting, or even buy a plant from a nursery.
Another reason for not growing passionfruit from seed is **the high susceptibility of the purple varieties and the hybrids to the root disease Fusarium wilt**. There are resistant root stocks (flavicarpa varieties). If Fusarium wilt is a problem in your soil, and if you need to grow susceptible varieties because of your cool

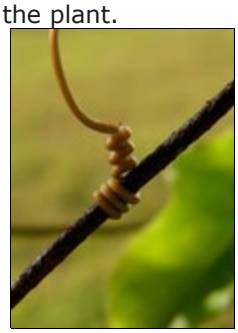
climate, then you may want to invest in a grafted plant from a nursery.
Ah, it's nice to live in the true tropics. All tropical passionfruits are reasonably resistant to Fusarium wilt, and they are also more resistant to nematodes, another problem of growing passionfruit.

Planting Passionfruit Vines

You can plant out your seedlings when they are about eight inches high (20 cm). If you wait too long and they are much bigger than that prune them back as you plant them out. It helps reduce moisture loss while the root system settles in.

Photo by Ziga

Make sure that whatever support you have in mind is strong enough for the vine. They do get huge and heavy pretty quickly and need something sturdy.
Also be aware that a vigorously growing passionfruit will climb over any- and everything it can reach and can quickly smother plants. Make your own life easier by growing passionfruit away from other shrubs and trees. (Note to self, I should heed that advice myself.)
Be careful to disturb the roots as little as possible. Dig a big enough hole, at least twice as big as the root ball, and **mix the soil with compost**before you back fill. Then **mulch thickly** around the plant.
In the early days you may have to train your vine up the support, by carefully tying it. But it will quickly get the message. As soon as there is something for the little tendrils to grab hold of, say the first wire on your trellis, it will climb on its own.



Feeding And Watering

Yep, plenty of both, please. Passionfruit needs a steady supply of both water and nutrients.
Of course, as always, don't overdo it. Overwatering can lead to root problems. Make sure you don't have water puddling and not draining away.
Overfeeding can also lead to problems. Too much nitrogen (most commercial fertilisers are heavy on nitrogen) will lead to lots of soft green leaves, attractive to all sorts of insects and diseases, but you get little fruit.
So, lots of compost, lots of mulch, and the odd sprinkle of a balanced, organic, slow release fertiliser.

How long does passionfruit take to fruit?

That depends on several factors. The tropical varieties fruit quicker then the purple passionfruit.
Any passionfruit will reach maturity sooner if growing in a warmer climate.
A passionfruit vine planted in spring fruits sooner than a passionfruit planted in autumn.
In ideal conditions (early spring planting in the tropics) you can get fruit within six months. Autumn planting in a cooler climate means you may have to wait for over 12 months.

When to harvest passionfruit?

That's what I love best about growing passionfruit. You don't need to worry about harvesting them. When they are ready they'll drop. Dropping on the ground does not hurt them the least bit. You just collect them as often as you feel like it.
When one of my passionfruit vines is in peak production I usually do it twice a day. My vines are very productive. Otherwise I will pick up my red passionfruit daily. It has a much thinner skin and I find it goes mouldy on the inside unless I put it in the fridge straight away.
My yellow passionfruits do not mind lying on the ground in the sun for a few days, and then sitting on the kitchen bench for weeks. They shrivel up and look awful, but they are still juicy and delicious inside.

Pruning Passionfruit

Pruning passionfruit is essential.
Well, usually it is. I don't always do it. Some of my passionfruit vines raced up into some huge trees and I can't get to them. So I just let them be.
Anyway, most people grow passionfruit on much smaller structures, like fences or trellises. If you don't prune your passionfruit you end up up with a thick, tangled mess of dead wood, and a plant that has lots of problems with fungal diseases.
Don't be shy, take your cutters to it. In the tropics you can prune a passionfruit as soon as it has finished fruiting. In cooler climates prune passionfruit in early spring.
Cut out everything that is dead or weak, trim healthy branches by about a third, and even fully remove some of them. You have to keep the plant within bounds, you need to make sure that some air can circulate through the foliage, and you want to stimulate vigorous new growth. Passionfruit only sets fruit on new growth.
If your passionfruit is growing where it shouldn't, or threatening to smother other plants, you can of course trim those shoots at any time.

How long does a passionfruit vine live?

I already mentioned it, growing passionfruit can be tricky because they are very susceptible to all sorts of root problems. Usually the plants are not all that long lived, **five to seven years is a long life for a passionfruit vine**.
Commercial passionfruit growers work on a life span of three years for their passionfruit vines. However, a well tended, well fed vine in a good location in healthy soil may live a lot longer.
I find that after three years the productivity of a vine definitely decreases, so I don't plan for them to live any longer than that. I simply start one or two new plants every other year. I'm lucky enough to have the space to do so.
If you don't have that space you will need to watch your passionfruit carefully, so that if you notice problems you can replant in time.
Don't be too disheartened if your healthy and productive vine after a few years suddenly dies. I'm afraid that passionfruit have a bad habit of doing just that...
If you follow permaculture design principles in your gardening methods, then your soil is improving all the time, and the next passionfruit will grow better and live longer.
To **discover my secret of growing passionfruit** in a supposedly impossible location, check out the page aboutpassionfruit in permaculture desings.
http://www.tropicalpermaculture.com/growing-passionfruit.html

-germinating the seed before it is planted. Maybe soak the in magnetized water before sewing.